TEXTILE TECHNOLOGY DIGEST

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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

[201]

FIBERS A

Natural fibers A 1

Cotton blends

J. S. Kenrick. *Hos. Und. Review 33*, 138-39, 150, (Nov. 1950).

Review of the development of cotton blends, paying particular attention to the production plans and dyeing of Fiber A, a new cotton/nylon blend developed by Aberfoyle Mfg. Co.

Detection and estimation of damage in jute fiber. Part II—Assessment of fungal damage on small quantities of fiber material

S. N. Basu & S. N. Ghose. *J. Tex. Inst. 42*, T1-5 (Jan. 1951).

Describes a miscroscopical test which can be used to compare the jute-tendering abilities of various fungi. The test is sensitive, rapid and requires a minimum amount of material. It can be applied to testing of fabrics, yarns and fibers.

Fiberglass in the textile industry

George Fox. *Textile Forum 8*, 17-19 (Feb. 1951).

Fiberglass materials are glass in the form of soft, pliable fibers. Experimental work to produce them began in 1938, and Fiberglass is now available in either filament or staple fiber. The processes required in its manufacture are briefly reviewed, and various uses for the yarn and fabric are described.

Fine structure of silk fibroin

R. Hegetschweitler. *Makromol Chem. 4*, 156-83 (Dec. 1949); *in German.*

Discusses the submicroscopic structure of silk fibroin.

Hair fibers structure

H. M. Appleyard & C. M. Greville, *Nature 166*, 1031 (Dec. 16, 1950).

[202]

Describes studies made in the Wool Industries Research Association laboratories on the arrangement of scales in the cuticles of mammalian hairs, by using ultra-violet light instead of the electron microscope. Photomicrographs.

Influence of fiber ends on adhesion of bare tire cords

W. James Lyons. *Am. Wool Cotton Reptr. 65*, 9 (Mar. 8, 1951).

See *TTD 7*, 864.

Must have cleaner cotton

Anon. *Am. Wool Cotton Reptr. 65*, 9-10 42 (Mar. 1, 1951).

See front section.

Photoelectric instrument for measuring tippiness in wool staples

H. Goot & R. E. Belin. *J. Tex. Inst. 41*, T-455-465 (Nov. 1950).

Describes a photo-electric instrument for measuring tippiness of wool staples, and outlines its construction and circuits. Results are given of various experiments in which the reproductibility of observations and the consistency and reliability of the machine are established. Finally, certain errors of measurement are discussed and possible improvements to the instruments are suggested.

Plasticity of wool

O. Ripa & J. B. Speakman. *Nature 166*, 570-1 (Sept. 30, 1950).

Describes investigation of extension under constant load of wool fibers in water. It is concluded that the plasticity of animal fibers is not determined solely by their cystine content.

Relation between strength and diameter of wool fibers

S. L. Anderson & D. R. Cox. *J. Tex. Inst. 41*, T481-91 (Dec. 1950).

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Selected fibers were measured for length, diameter, breaking load and elongation. Correlations were established between the variables. It was concluded that fiber breaking load per unit cross-section increases with diameter when the length tested is constant.

Silk review

Anon. *Amer. Fabrics 15,* 64-86 (1950).

Review of the history of silk making, with brief description of modern processing methods. The characteristics of tussah silk are specially noted. Illustrations and samples.

Textile Fibers

L. E. Parsons & John K. Stearns. International Textbook Co., Scranton 9, Pa.; price $4.00. *Textile Industries 115,* 196 (Mar. 1951).

This book is a practical guide on the subject of textile fibers. It includes 4 parts: (1) cotton; (2) wool; (3) man-made fibers; (4) yarns.

Tomorrow's cotton problems possible of correction

Anon. *Am. Wool Cotton Reptr. 65,* 10-12 (Mar. 8, 1951).

See front section.

Tomorrow's cotton problems

Anon. *Am. Wool Cotton Reptr. 65,* 9-10, 47, 49 (Feb. 22, 1951).

The increasing use of machines on cotton farms has already proven of tremendous aid in reducing time, labor, and costs in producing cotton, but complete mechanization of cotton farming is necessary to substantially lower cotton costs to the spinning mill. In a survey of some of the larger mills to determine their attitude to mechanically picked cotton, it is noted that mills engaged in spinning fine counts and high quality yarn are reluctant to use this cotton as mechanical picking decidedly lowers the grade of cotton. The main objection to mechanically picked cotton is the large amounts of grass mixed with the good fiber and which is difficult to remove in the opening and picking processes. However, mills are ready and willing to adopt the use of mechanically picked cotton as soon as the quality of the stock improves. The responsibility for the future of cotton lies in the co-operation of the farmer, ginner and spinner in producing cleaner more usable fibers.

Use of density gradient tubes in fiber studies and their application to the analysis of fiber mixtures

J. M. Preston & M. V. Nimkar. *J. Tex. Inst. 41,* T446-54 (Nov. 1950).

An available method for measuring fiber densities which is simple to use and employing density gradient tubes is described. Density data are given which assist in the identification of fibers. A new method is also described for the quantitative analysis of binary mixtures of fibers.

Variation in specific gravity of angora wool

H. W. Hohls. *Melliand Textilber. 32,* 99-102 (Feb. 1951); *in German.*

In this article the author gives figures and the breadth of variation of the specific gravity of Angora wool. It was observed that these figures vary at different times, the variation being connected with the formation of tiny air chambers. The author arrives at the conclusion that determination of the specific gravity is practically valueless for the textile industry, because the expenditure involved in obtaining a satisfactory measurement is excessive.

Wool blends review

W. L. Hewitt. *Wool Rec. 78,* 1505-6 (Nov. 9, 1950).

Brief discussion of merits and drawbacks of using synthetic staple fibers (reference is to rayon) in blends with wool. The price aspect is considered.

Wool review

Amer. Fabrics 15, 99-127 (1950).

Review of current wool production and prices, the history of wool stages in wool processing, properties and shrinkage. Other animal fibers are also referred to. Illustrations and samples.

Wool structure

H. Lindley. *Research 3,* 509-13 (Nov. 1950).

Review of recent investigations into the fine molecular, macromolecular and histological structure of wool. 51 references.

Artificial fibers A 2

Adhesive property of rayon staple

G. Thieme. *Melliand Textilber. 32,* 103 (Feb. 1951); *in German.*

The adhesive property of the various types of rayon staple varies very widely. The structure and quality of the individual fiber are decisively responsible for the trouble-free course of processing operations, with special reference to fiber length and fineness, curl, suppleness stiffness and quality of the surface. The present article gives special prominence to the quality of the surface in connection with and dependent on the other

properties mentioned. Taken as a whole, these properties give the spinning value of the fibrous material.

Artificial fibers

By R. W. Moncrief. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 313 pages. Feb. 27, 1951. Price $4.50.

A thorough coverage of artificial or "man-made" fibers is presented by *Artificial Fibers*, a new book by R. W. Moncrief. A large section is devoted to the processing, dyeing, and finishing of the fibers. Other sections give historical and developmental backgrounds, the important manufacturing processes, the chemical and physical properties, and the uses of the fibers.

English, American and other fibers are described. The three general groups discussed are regenerated cellulosic and alginic fibers, regenerated protein fibers, and synthetic fibers.

Beginning with a review of the fundamental conceptions of the structure and properties of fibers, the author goes on to a rather detailed treatment of individual fiber properties. Part II presents regenerated cellulosic and alginic fibers which includes viscose, cuprammonium, cellulose acetate high-tenacity cellulosic fibers, and alginic fibers. Part III deals with casein, soybean, and zein fibers. Part IV treats nylon, perlon, terylene, Vinyon, "Velon", "permalon", PeCe orlon, polythene, and plexon.

Developments in production technology during 1950

Anon. *British Rayon & Silk Journal 27*, 50, 52 (February 1951).

A review of British patent literature for 1950, hitting only the high spots of technology in the manufacture of synthetic fiber, but being of interest to the textile manufacturer chiefly for the following content: 26 references to new technical methods on synthetic manufacture, including one to the new "Celcos" fiber. This new synthetic is an acetate staple fiber that can be dyed equally with direct or dispersed dyes.

Dielectric properties of Terylene

W. Reddish. *Chem. and Ind. 50*, 808-9 (Dec. 16, 1950).

Report of a paper presented to the Plastics and Polymer Group of the Society of Chemical Industry. Describes investigations of the dielectric constant and loss factor of Terylene measured at temperatures between 80°C. and 210°C. and at frequencies between 10^2 and 10^7 c./sec.

Fiber V — the fiber with many outstanding and valuable properties

Hillary Daugherty. *Textile Forum 8*, 20 (Feb. 1951).

Fiber V is the tentative name of duPont's newest fiber, which is going into production at a new plant to be built at Kinston, N. C. It is a condensation polymer obtained from ethylene glycol and terephthalice acid. It has high tensile strength, and good resistance to degradation by chemical bleaches and to abrasion. Fabrics from Fiber V can be heat set, and have good resistance to wrinkling. They launder easily and dry quickly, and are not weakened by fungus, mold, or mildew.

German producer introduces new synthetic fiber

Anon. *Daily News Record*, 33 (Feb. 13, 1951).

A new addition to the growing family of synthetic yarns was announced with the introduction of "Phrilon". Still in an experimental stage, large-scale production is expected to start as soon as the necessary equipment can be installed. "Phrilon" is derived from a polyamid. "Phrilon" comes from furfurol which has hitherto been used primarily as a solvent. "Phrilon's" pliability and resistance to wear is claimed to exceed other fully synthetic fibers.

Properties and textile applications of rubber fibers

Anon. *Rev. Tessile 4*, 803-4 (1949); *Brit. Cotton Ind. Res. Assoc. 31*, 35 (Jan. 31, 1951).

The physical, mechanical and other properties of vulcanized rubber fibers are summarized. The value of their elastic property and their applications in, for example, clothing and orthopaedic appliances, are discussed. In addition to individual rubber fibers, those covered by means of cotton, silk and rayon are mentioned. Methods of indicating the count of square-section, round-section and covered rubber fibers are given.

Quality control and the new fibres—1

Ogden Clegg. *Textile Mercury & Argus 124*, 141, 143, 144 (January 26, 1951).

Successful development of man-made fibers requires first that they be used in the correct manner. The greatest danger is that in these days of shortages mills may be tempted to use them for purposes that they were never intended to serve. The properties of the fiber determine the use. In this first of a series of articles, the properties of durability and resistance to wear are outlined. Four references.

Quality control and the new fibres—2

Ogden Clegg. *Textile Mercury & Argus 124,* 185, 187 (February 2, 1951).

While strength and elongation are no longer the only important fiber properties tested, they should be determined regularly for all fabrics in the mill. Strength should be checked carefully on fabrics with protein-fiber blends. Regenerated protein fiber should not constitute more than 50 percent of a blend with wool. Constant-rate-of-loading testers are preferred for prototype testing by a research staff; constant-rate-of-extension testers are preferred for routine control purposes. Moisture content, chemical resistance, biological attack and other properties of new fibers are outlined.

Quality control and the new fibres—3

Ogden Clegg. *Textile Mercury & Argus 124,* 231-232 (February 9, 1951).

Synthetic fibers are compared with respect to properties of resistance to outdoor exposure tests, inflammability, crease-resistance, feltability, and wear. Orlon, nylon, Terylene saran, viscose, Pe Ce, and others are discussed, along with cotton and wool.

Single Fibers: stress strain curves at different temperatures

F. H. Muller. *Kolloid Z. 113,* 166-70 (1949).

Presents and discusses stress/strain curves obtained with several synthetic fibers (PeCe, polyvinyl alcohol, Perlon, polystrene) at different temperatures. The phenomena of cold drawing are discussed.

Viscose rayon staple development

Anon. *Textile Weekly 46,* 1182-4 (Nov. 3, 1950).

Review of open day at Courtaulds Ltd., Arrow Hill, Castleton. Discusses the development of "Fibro" (viscose rayon staple).

Viscose rayon developments

B. Sutcliff. *Hos. Trade J. 57,* 62 (Nov. 1950).

Report of address to the Rossendale Valley Textile Society. Reviews recent developments in viscose rayon manufacture and discusses briefly some of the properties of viscose rayon, Vinyon, acetate rayon and Orlon.

Yarn production — B

Fiber preparation — B 1

Cotton opening and cleaning

W. A. Hunter. *Textile Weekly 46,* 1512, 1514, 1516 (Dec. 8, 1950).

A review of British methods of opening and cleaning cotton, showing that single process operations have undergone substantial change during recent years. Improvements in beaters, grid bar systems, and feeder controls are cited. Suggestions for further improvement in British processes and methods are offered.

Discussion on bad picker laps

Anon. *Textile Industries 115,* 177, 199 (Mar. 1951).

Opinions are requested by a reader on picker laps which are processed on two Whitin one-process pickers equipped with Buckley openers at the breaker section, one 3-blade beater at the intermediate section, and one carding beater at the finisher section with each picker having 3 fans. The picker laps are uneven and vary about ¾ ounce per yard. One contributor writes that the escape area for the fans is not sufficient and recommends dust chambers of a minimum of 5 sq. ft. of space for each fan exhausting, and also that space from the dust room into the chimney should be equal to the area of the chimney itself. It is suggested that the evener motions be checked since the evener motion should be very sensitive, and the evener belt should be of the best quality and not over 1 inch wide. Belt dressing should not be applied to the evener belts.

Syton termed medium of fiber migration control

Anon. *Daily News Record,* February 5, 1951).

See Front section.

Wool grading in mill management

T. J. Watson. *Textile Mercury & Argus 124,* 151-155 (January 26, 1951).

See Front section.

Carding and combing — B 2

Card settings

Anon. *Platt's Bulletin 7,* 130-31 (1950).

Card setting is illustrated by pictures and drawings, emphasizing the datum line as a guide for future settings of the flat grinding motion.

Disclose new nep control

Ivan Feng. *Am. Wool Cotton Reptr. 65,* 13, 50 (Feb. 22, 1951).

Tangles in cotton occur somewhere between the time the fiber is fed to the first machine and the time it is made into yarn. Five key points,

or principles, to prevent tangling of the fibers and thus to control nep are given: (1) Proper selection of cotton. Fineness and maturity are significant factors in determining the nepability of the fiber; (2) Avoid severe treatment of cotton at the gin as well as at the cotton mill. Reduced opening and picking produce less neps; (3) Reduce loading cards. Closer settings between the flats and the cylinder, more frequent stripping, more frequent grinding of cards, and closer doffer-to-cylinder settings are recommended; (4) Transfer fibers gently during a stripping action. On the card, if the surface speed of the lickerin can be increased to approximate the speed of the cylinder, more uniform yarn with fewer neps is produced; (5) Improve distribution of fibers onto the cylinder. Increased lickerin speed accomplishes the same thing that would happen if the doffer speed were reduced by one-half, i.e., the amount of fiber on each tooth of the lickerin is half as much and less fiber is transferred from the lickerin to the cylinder, giving more even distribution of fibers on the cylinder.

Dorr Woolen installs new wide cards

Anon. *Textile Industries 115,* 94-9 (Mar. 1951).

Installation of four new tandem style, three-cylinder Duesberg-Bosson cards at Dorr Woolen Co. is reported to have given high productivity with labor savings and noticeable improvement in subsequent operations. The machines are 62′ 3½″ long, 11′ 8⅛″ wide with head room of 7′ 6″, and a 1½′ deep sheet metal pit is sunk in the floor beneath each doffer cylinder to allow clearance for the 50″ diameter roll. The machine frames are heavy cast iron sections mounted on machine finished cast iron floor rails which distribute the load uniformly throughout the total length of the machine and provide for movement of each section of the card independently. Features of the new cards include .78¾″ cylinder and roller face width, centralized pressure type lubrication, an automatic card feeder provided with a large capacity hopper, 36″ metallic breast with automatic burr remover, pneumatically loaded Peralta rolls, a tape condenser, and Belgian type parallel fiber intermediate feed. The machine is powered by two 10 hp. synchronous motors through V-belt directly to first breaker and finisher cylinder shafts.

Economy in process steam for wool combing and scouring

R. Adams. *Am. Wool Cotton Reptr. 65,* 31 33, 126-7 (Mar. 15, 1951).

The main steam using processes in any combing mill are: washing or scouring; drying; carding; back washing; combing; and space heating; and each must be considered to effect economy in steam consumption in a combing mill. In scouring, considerable economy can be effected by filling the washbowls directly from the engine condensing water return main, and slight additional economy can be obtained by use of thermostatic control to maintain water in washbowls at the desired temperature. The basic principles for modern efficient wool drying machines are a high air temperature and a high velocity of air with 95% recirculation of the air. Modern machines, designed in regard to the above principles, will operate under optimum conditions with a steam consumption approaching the theoretical minimum. Efficiency of the washbowl drier also effects the carding. With the drier providing wool to the carding operation at an optimum condition, up to two or more of the usual three of four rows of heating cannons can be dispensed with, and further steam savings are possible by reducing the steam pressure on the cannons. With the machines available today back washing is one process where reduction of steam consumption is limited. A redesigned machine based on efficient thermal and aerodynamic practice is needed. In combing, a new arrangement for heating the carriage, in which the carriage, mounted on the ball race, is cast integrally with the steam chest, will result in 25% reduction of steam consumption and the same or even higher temperature as in the older method. The main requirements in space heating include heating warehouses during working hours and the combing shed at week-ends. In practice, it has been found that the human element is a necessary factor in controlling steam supply and is important in effecting any economy in steam consumption. Finally, steam trapping, reduced steam pressures and working conditions are important factors to be considered in dealing with steam economy.

Pin drafter

C. R. Smith. *Textile Forum 8,* 8-9 (February 1951).

See front section.

Drafting and roving B 3

Drafting and stretching roving

Johannes H. Hiensch. USP 2 542 331, Feb. 20, 1951.

A process and apparatus for drafting and stretching a textile strand such as a roving with the tension controlled automatically by the number of fibers in the cross-section of the strand at a particular location.

Static elimination

Anon. *Rev. Sci. Instrum. 21,* 822 (Oct. (1950).

None on "Alphatron" static eliminators, which comprise bars, strips or foils of brass or nickel on which polonium is electrochemically deposited, the active area being covered by a thin layer of electroplated gold. Positioning and use of the various types is noted.

Superdraft porcupine drawing frame eliminates worsted processes

Anon. *Textile World 101,* 163 (Feb. 1951).

A new superdraft device has been developed for porcupine finishers to effect better fiber control and evenness. It consists of an apron which supports and transports the sliver from the back rollers to the nearest point of the porcupines. Advantages of this equipment made by Textile Machines Isotta Fraschini of Milano are described as follows:

1. The processing speed on the Superdraft porcupines, even if short-staple wool is being used, can be upped to about 31 yd. per min., against 26 to 27.

2. Sliver breakages are reduced to a minimum, and one operator can easily supervise one 25-head, 50-bobbin machine.

3. The normal draft on porcupines was 4.2 to 4.5. It can be increased to 7 or 8, and longer fibers can be processed with drafts of 9 and 10 without difficulty.

4. The roving produced on the Superdraft porcupine is better in quality, more even, and can be better processed on ring spinning frames.

5. The attachment of the Superdraft device on the finishers is easy and inexpensive.

6. If, for instance, a mill could formerly prepare with one porcupine passage roving for 40s, the mill can now produce on the superdraft porcupine a roving which can be spun into 50s to 64s without additional drawing passages. Thus a spinner can eliminate one to two passages of drawing.

Spinning B-4

Application of the index of irregularity to the study of spinning on the cotton system

R. Temmerman & L. Hermanne. *J. Tex. Inst. 41,* T-411-421 (Nov. 1950).

Describes the use of K, a proposed parometer of irregularity, which takes into consideration the count of slivers, rovings and yarns, to facilitate obtaining information regarding the coefficients of variations during progressive stages of spinning.

Apparatus for spinning and twisting textile yarns

John K. Cochran (to The Duplan Corp.) USP 2 541 746, Feb. 13, 1951.

Apparatus for spinning and twisting textile yarns comprising a frame having supporting elements for three vertical banks of textile yarn spindles and take-up reels, the spindles having their axis inclined, each take-up reel being located below its respective spindle each the take-up reel being in substantial horizontal alignment with the base, and substantial vertical alignment with the top of its respective spindle.

Composite yarn and fabric made therefrom

Cornelius A. Garner. USP 2 541 500, Feb. 13, 1951.

A fabric made by interknitting the loops of a composite yarn, the yarn comprising a binder chain, a knitting strand, and a plurality of face forming strands, the knitting strand being of sinuous form and having portions bound into bights of the binder chain and other portions providing a series of spaced loops of predetermined size knitted into the fabric to form the ground cloth thereof, and the face forming strands passing successively from one side to the other of the binder chain and respectively bound into successive bights of the binder chain as each strand is crossed over from one side of the other.

Composite yarn, fabric made therefrom, and method of making the same

Cornelius A. Corney. USP 2 541 499, Feb. 13, 1951.

A composite yarn to be used for knitting into a fabric, said yarn comprising a binder chain, a knitting strand, and a face forming strand, the knitting strand being of sinuous form having inner portions bound into bights of the binder chain and outer portions providing a series of loops of predetermined size adapted to be knitted into a fabric to form the ground cloth thereof, and the face forming strand having inner portions bound into bights of the binder chain and having outer portions constituting cut pile for forming the face of the fabric.

Construction and efficiency of ring spinning frame

Josef Schneider. *Melliand Textilber. 32,* 105-8, (Feb. 1951) ; *in German.*

This article contains a technological description of the process of doubling and besides enables us to recognize the steadily growing tendency of builders of textile machinery to combine modern knowledge of the construction of machinery in regard to structure, as well as to the angle of gearing technique, in order to make manufacturing operations more economical.

For cheaper plied yarns — try core spinning

A. Johnson. *Textile World 101,* 128-129 (March 1951).

Core spinning incorporates a strong fine yarn with a heavier, weaker yarn while the latter is being spun on the spinning frame. Three objectives are cited for the method: 1) the support of a weak thread during spinning and weaving; 2) the making of a strong foundation for weaving purposes; 3) the elimination of ply twisting.

Photographs of core yarns, a chart showing tensile strength and other characteristics of fabrics made from core yarns, details of appearances, and illustrations of particular counts and grades of yarn and wool are included in the article.

Hegemax — a revolution in spinning

E. G. Hegedus. *The Cotton Trade Journal,* International Edition 1949-50.

See front section.

Here's an easy way to check spinning ends down

P. S. Leach. *Textile World 101,* 119 (March 1951).

By checking each side of a spinning frame once per day, the author develops a simpler method of making ends-down checks. Not mathematically exact, the method nevertheless is said to get results and to act as a barometer for running conditions in the spinning room.

Increased worsted output expected from pot spinning

Anon. *Daily News Record,* (February 8, 1951).

See front section.

100s combed viscose yarn made by Snia Viscosa

Frank Perutz. *Textile World 101,* 139 (March 1951).

Viscose staple of lengths of 80 mm., or somewhat longer than 3-in. staple, have been spun into numbers as high as 100s by the Italian mill

firm of Snia Viscosa. Denier of the staple was 1 to 1½. Over 500 doublings were used to reduce the stock. The French worsted system was used.

Fibers were carded on a doubled worsted card, passed through two intersecting machines, then combed on the SAG French comb. Another intersecting machine, followed by a finisher, then three intersecting processes, two coarse rovings, a porcupine and a porcupine finisher. Spinning draft was 18-20 on regular worsted ring spinning.

The very fine yarns were used in varied fabrics to replace combed yarns made from Egyptian cotton. Some of the yarns were also said to have been purchased by an American manufacturer for use in widely advertised men suitings.

Nylon yarn manufacture

Anon. *Hos. Und. Rev. 33,* 124-5 (Dec. 1950).

Reviews the development of 15-denier nylon twisted 40 or more turns, and discusses the characteristics of experimental stockings knitted from this yarn.

Ring spinning frame

Hector L. Ayala (to Celanese Corp. of Am.) USP 2 542 106, Feb. 20, 1951.

A ring spinning frame provided with a stationary guide adjacent to the lower end of the package to be wound and in which the spindle is provided with a notched disk which rotates with it and catches the yarn in such a manner as to draw it through the guide in a spiral path during which time a transfer tail is wound on the end of the package core which extends below the guide.

Spindle for use in textile machines

Earl S. Wood (to Whitin Machine Works) USP 2 541 802, Feb. 13, 1951.

In a spindle for supporting and rotating a yarn carrier, a one-piece steel blade having an enlarged upper end portion, a barrel comprising a thin steel tube which carries its full diameter to its extreme lower end, a bushing firmly fixed in the lower end of the tube and having a recess in which the enlarged upper end portion of the blade is received and firmly engaged, a cap closing the upper end of the tube and engaging and centering the yarn carrier at its upper end only, and a driving whirl of a strong metal, which whirl has an upwardly-extended sleeve which encircles and firmly engages the lower end portion of the steel tube, the upwardly-extended sleeve also loosely centering the lower end portion of the

varn carrier and holding the lower end portion spaced outwardly from the tube.

Spinning ring

Irby M. Gore. USP 2 541 238, Feb. 13, 1951.

In a spinning frame, a vertically movable ring rail, an upstanding drum arranged near one end of the ring rail for rotation at a given elevation, a group of rings extending longitudinally of the rail, a holder surrounding each ring and held stationary upon the rail, the holder and ring having races, bearing elements held within the races, a wide pulley secured to each ring and extending downwardly below the ring and holder and having an approximately flat face, a wide flat belt extending longitudinally of the rail and engaging a plurality of the pulleys to drive them and passed about the upstanding drum to be driven thereby, means to shift the belt vertically with the movement of the rail so that the belt is shifted longitudinally of the drum, and means to drive the drum.

The Ambler superdrafter

Anon. *Wool Science Rev. 6,* 3-12 (Sept. 1950).

Outline of principles on which the Ambler Superdraft system is based, and concise description of the development and design of the device. Diagrams.

Twisting spindle

Jean-Louis Pellat-Finet and Marcel Riffet USP 2 541 541, Feb. 13, 1951.

A twisting spindle comprising a hollow shaft for the inward passage of the thread, means for rotating the shaft, a pair of sleeves arranged concentrically with the hollow shaft in spaced relation with one another, a support for the supply of thread secured to one of the sleeves, each of the sleeves being formed with a cylindrical shoulder having an inclined axis with respect to the axis of the shaft and both axes of the cylindrical shoulders being parallel, an annular member rotatably mounted on each of the inclined cylindrical shoulders and connecting members between the two annualr members for constantly holding them in parallel planes, both inclined axes of the cylindrical shoulders being situated in alignment one with the other, whereby when upon rotation of the hollow shaft one of the sleeves is kept stationary, the other one and the thread support will also be kept stationary.

Worsted pot spinning gives increased production

John J. McCann. *Am. Wool Cotton Reptr. 65,* 13-14, 16 (March 1, 1951).

A description is given of the pot spinning frame and its operation. As compared to ring spinning, pot spinning equipment will be more expensive per spindle, but it is believed that this will be overcome by its higher production. Advantages of centrifugal spinning are: very few ends down; lack of knots; no piecing with attending uneven twist and draft; no double spinning of 2 ends together on one bobbin; no uneven drafting after the yarn has left the draw field; and an even round yarn is produced. The first commercial installation of this machinery consists of a 100-pot spinning frame which is now nearing completion at the Abbot Worsted Co., Graniteville, Mass.

Yarn quality

E. R. Goshawk. *J. Tex. Inst. 42,* P1-11 (Jan. 1951).

Builds up a systematic framework within which the whole picture of yarn quality may be seen. Defines quality in terms of precise quantities.

Winding and spooling B 5

Automatic winding machinery from Holland

Anon. *British Rayon & Silk Journal 27,* 77 (February 1951).

A series of four-spindle automatic winders for quill and pirns have been introduced from Holland. Braider bobbins and sewing threads are also handled by the machines. Made by H. W. Ceelen & Zn., the machines are known by the trade name of "Cezoma". The pirn winder is available with bunch builder, and in speed ranges extending up to 7,000 r.p.m. The quill winders have adjustable taper end and precision cross-wind mechanisms. They are also fitted with positive holding chucks for paper tubes and with special centers for thin tubes. London agents for the machines: James Day Ltd., 90, Regent Street.

Control of tension in winding

E. W. Schmiedel. *Hos. Times 23,* 39-40 (Dec. 1950).

Discusses practical points which help in maintaining correct yarn tension during winding, including machine maintenance, speed of winding, position and type of supply package, and properly tied knots.

Modern winding machines

W. B. Kaufmann. *Melliand Textilber. 32,* 108-11 (Feb. 1951); *in German.*

This article opens with a systematic survey of weft winding machine in general and then proceeds to describe modern German, Swiss and Czech designs.

MU2 uptwister for packages of 2 lb. net weight

Anon. *Platt's Bulletin 7,* 122-26 (1950).

The development of larger packages with higher spinning and extrusion speeds for continuous filament yarns has led to a reduction in the initial twist inserted. This, in turn, is reflected in a deterioration of the handling qualities of the yarn. Since this is a most undesirable feature, means must be adopted to overcome it. The M.U.2 uptwister is ideal for this purpose, as it will add sufficient twist to relatively low twisted yarns at high speed and low cost. It provides a finished package which can be handled without difficulty and which is very acceptable to the trade for subsequent processing.

The two main fields of employment, therefore, for the M.U.2 are:

1. Pre-twisting low-twisted yarns from large packages to render them suitable for further processing.
2. A large package uptwister capable of inserting up to 70 T.P.I.

The M.U.2 is a double-deck machine, each deck being driven by separate motor, independently of the other. Built on a unit construction principle, the number of spindles per unit varies according to the pitch.

Three types of package can be produced:

1. Parallel cheeses
2. Parallel cheeses with taper ends to eliminate sloughing.
3. Double-flanged bobbins.

The change-over from parallel cheeses to parallel cheeses with taper ends is accomplished in a matter of seconds by a very simple adjustment. The changeover to double-flanged bobbins is also relatively easy.

Spindle pitch varies according to the package size, and every consideration has been given to the advantage of extra spindle capacity within standard machine lengths, e.g., the standard pitch for a 2 lb. package is 9 inch. Pitch can be reduced in the case of low spindle speeds and short cheeses.

Roller bearing spindles, ensuring smooth running up to a speed of 10,000 r.p.m. are flexibly mounted in three "Silentbloc" bushes and are thus completely isolated from the swing arm and spindle mounting bracket. They are carried in a patented special type, double bearing, self-lubricated swivel mounting which incorporates a spring operated toggle mechanism to give a positive "off" position when released from contact with the driving belt, and a positive "on" position when in contact.

New gyroscopic cleaning device for dirty yarn

Anon. *Textile Mercury & Argus 124,* 275, 279 (February 16, 1951).

See front section.

Single spindle winder for hosiery bobbins

Anon. *Textile Industries 115,* 185 (Mar. 1951).

A single-spindle winder, developed for manufacturers whose production of half-hose is not large enough to justify the use of a full-size hosiery bobbin winder, is a self-contained machine mounted on a base board which can be fixed to any work bench. It has a single-spindle winding head with conventional disc build. The spindle is driven by a 1/6 hp. electric motor mounted on the same base board. A simple creel to take any type of yarn package is fitted. Mfr: Foster Machine Co.

Time-saving attachment for spoolers and winders

Anon. *Textile Industries 115,* 185 (March, 15, 1951).

A yarn handling device (U. S. patent 2,536,510) for spoolers and winders can be applied to most standard Foster and Universal winders that are creeled with spinning bobbins. A bucket which runs on an overhead rail brings the bobbins from the spinning room or conditioning machine, and the entire contents of the bucket are, in turn, emptied into a large capacity hopper by tilting the bucket. Full packages doffed from the spooler or winder are transported on an endless conveyor belt to a cone hopper, container, or inspection table. Empty bobbins are returned to the spinning room by another conveyor system. Mfr: P. O. M. Co.

Winding large coarse yarn packages

Anon. *Am. Wool Cotton Reptr. 65,* 129 (Mar. 1951).

This is an abstract of an article from "Twists and Winds" published by the Universal Winding Co. The Nos. 6C, 8 and 45 precision winders, which operate on the same basic principle as the No. 50 precision winder, are used for winding coarse yarns and heavy material. They are heavier in construction and have somewhat dif-

ferent attachments for handling the larger packages.

Yarn feed control system

Marion E. Blake (to William A. Blake) USP 2 541 192, Feb. 13, 1951.

In an attachment for a textile machine having a rotary power shaft and a rotary bobbin having yarn thereon, the combination therewith of a driving means actuated by the shaft, variable speed mechanism operated by the driving means, reversible operating means for the variable speed mechanism, gearing connecting the variable speed mechanism with the bobbin, a contact roller, spring means for urging the roller into contact with the yarn on the bobbin, means controlled by the roller for regulating the feeding of yarn from the bobbin, and means operatively connecting the feed-regulating means with the reversible operating means.

Yarn package testing apparatus

See front section.

Yarn testing — B 10

Low-twist filament yarn evenness can be measured accurately

Anon. *Textile Industries 115*, 183 (Mar. 1951).

The Rotafil unit, a device developed to be used in conjunction with evenness testers, twists and rotates the yarn as it is measured by the conventional electronic testers and then removes the twist. A false-twisting tube with accurately set guides is used. The form factor is thus eliminated by increasing the number of flats and edges in the pick-up area and by keeping that number relatively constant. The unit is applicable to at least 3 testers. The Uster Evenness Tester, the Brush Uniformity Analyzer, and the Serc Electron Micrometer. Mfr: American Viscose Corp.

Moisture-content determination in yarns

R. Popp. *Textil Praxis 5*, 28-9 (Jan. 1950); *in German.*

A description is given of the principles and construction of a simple device for determining the moisture-content of yarns. It consists essentially of a container in which is a small gauze basket for holding a sample container in which is a small gauze basket for holding a sample of the yarn being tested. Air is drawn through the sample and passed on to a special hair-hydrometer which gives a value for the moisture-content when equilibrium is reached. The principle is based on the fact that for a given atmospheric humidity, the fiber will either take up from or yield to the atmosphere a certain quantity of moisture proportional to the deficiency or excess relative to the air.

Physical analysis of yarns

H. Matthes. *Melliand Textilber. 31*, 33-7 (Jan. 1951); *in German.*

The first part of the article deals with a novel method of evaluating of yarns, consisting in the combination of a normal yarn strength tester with the Matthes yarn abrasion tester. The author determines four grades of quality for total extension, breaking stress, evenness and resistance to abrasion respectively. These figures are assembled to form seven utility values. Part II of the article deals with representation of the results by means of suitability diagrams, and the author shows how to create a species of shorthand for the evaluation of yarns with the aid of these diagrams. Later symbols can be combined to form words capable of use as marks of quality, code words and the like.

Yarn preparation — C 1

Anti-ballooning device for magazine cone creels

Anon. *Textile Industries 115*, 179 (Mar. 1951).

Excessive ballooning of yarns generally develops when warping very low counts, yarns with high twist, or linen yarns from cones in high speed warpers. To prevent excessive ballooning on magazine cone creels having 10 horizontal rows of cones and 20 uprights on each side, an anti-balloning device is suggested. The device consists of stretching soft type of wires from front to back in each wing of the creel, passing the wires between horizontal lines of the cones. Each line of cones should have a wire above and below and centered between the horizontal lines of the cones. Holes should be drilled in the uprights; the first below the lower line of the cones and each succeeding hole midway between each line of cones with the final hole over the top row. Each piece of wire should pass through the corresponding hole, and angle irons are necessary to secure the wire to the base and top of the creel, where the creel bends, and at the extreme end of the creel. Wing nuts may be used on the brackets to control tension on each wire individually.

Developments in sizing

Anon. *Textile Weekly 46*, 1690 (December 22, 1950).

See front section.

Sizing tube

Palmer G. Hendrix (to Hickory Specialty Co.) USP 2,541,963, Feb. 13. 1951.

Yarn holding means comprising a tube onto which yarn is adapted to be wound and having a slot extending longitudinally thereof for the entire length of the tube, means for holding the walls of the slot in spaced relation to each other, the means being movable to another position to allow movement of the walls of the slot toward each other upon contraction of the yarn disposed on the tube, the tube also being provided with other means for limiting movement of the walls of the slot toward each other after the first named means has been adapted to allow movement of the edges of the opening toward each other.

Spartan Mills modernizes its slasher room

E. Dalton White. *Textile World 101,* 125, (March 1951).

One of the most modern slasher rooms in the country has resulted from recent improvements by Spartan Mills at their Spartanburg, S. C. plant. The mill operates four three-cylinder slashers which are fitted with variable-speed drives. Sarco steam valves increase production and save steam. Installed in the by-pass line around the temperature-control valve, the valve traps the condensate from the slasher cylinder when the temperature of the cylinder reaches the required settings; and the temperature valve is then closed.

Back squeeze rolls are equipped with 16-oz. wool blankets which are changed every four weeks from the bottom roll to the top roll. Ample beam racks and beam handling systems are provided; details of size-cooking procedure are given.

Warping, process

R. Brebar. *Rayonne 6,* 61-5 (1950;) *in French.*

Gives some practical hints for the warping of yarns for the production of non-laddering stockings, including the handling of the yarn, inspection of materials or objects coming in contact with the yarn, yarn breakage and atmospheric condition.

Weaving C 2

Check strap for looms

Herbert T. Thrower and George W. Keese, USP 2 536 786, January 2, 1951.

A check strap for a picker stick which is movable back and forth between predetermined limits, said

strap being in the form of a loop, being adapted to surround said picker stock and being so formed that when supported in its operative position one edge of said strap will be presented to the picker stick when the latter approaches one of said limits and the other edge will be presented when said stick approaches the other of said limits.

Design and production of tie fabric—3

A. T. C. Robinson, *Skinner's Silk & Rayon Rec. 24,* 1648, 1650, 1652, 1655, 1658 (Dec. 1950).

Jacquard figures in woven tie designs are characterized by two main styles: solid warp and end-and-end figuring. Almost any type of design is possible from the solid warp method, and designs, photographs, and construction details are given for two typical designs. Two end-and-end designs are similarly illustrated.

Device for controlling the tension of thread or yarn

Christian Chirstiansen & Gustav O. K. Rusch. USP 2 536 537, Jan. 2, 1951.

In a textile machine, a means for regulating the tension applied to thread supplied to the weaving element of the machine comprising two drums spaced apart and supported for rotation about axes lying parallel to one another, means for drivingly connecting the two drums for rotation in opposite directions, one of the drums having a greater peripheral speed than the other of the drums, means for rotating the drums in a manner adapted to tension the thread supplied to the weaving element, the means consisting of turns of the thread passed around both the drums, the turns being made so that the thread passes from the one drum to the weaving element, the rotation of the one drum being opposite to the direction in which the thread leaves the drum.

Device responsive to the unwinding of a weft thread

Henri Pelce (to Societe dite: Saint Freres) USP 2 535 369, Dec. 26, 1950).

In a circular loom, a device responsive to the unwinding of the weft thread from a cop contained in a shuttle, which comprises a small-power electric generator carried by the shuttle and actuated by the weft thread as the same unwinds from the cop so that the current generated will be cut off whenever the thread ceases to unwind, and means to stop the loom whenever the current thus generated is cut off.

Driving means for axminster tube frame

conveyor systems

Walter Y. Robb, (Compton & Knowles Loom Works) USP 2 537 549, January 9, 1951.

In an Axminster loom having a tube frame conveyor system part at least of which is moved step-by-step when a pullover shaft has periodic angular movements, a star wheel operatively connected to and turning with the pullover shaft, and a pin wheel to move the star wheel rotating at a rate which varies during a rotation thereof and causing angular movement of the star wheel and the pullover shaft when turning at the faster rates thereof.

Filament-spun serge

Anon. *Am. Wool Cotton Reptr. 65,* 13, 42-3 (Mar. 8, 1951).

Radical improvement in the quality of warps, more care in regard to reed quality, and important improvement in the quality and evenness of spun yarns of synthetic fiber have made possible quality fabrics of fancy construction. A filament-spun serge is analyzed which consists of an acetate filament warp in a heavy denier with no projecting fiber ends and a filling of spun viscose yarn in a heavy yarn size. The weave is two up and one down, often used in so-called gabardines; and the fabric can be finished in a white state or piece-dyed, or as in the sample analyzed it can be cross-dyed. A soft, flexible fabric with a smooth appearance and a two-tone effect on the face is the final result.

Hand loom weaving—II

D. R. Christie. *Fibres 11,* 429-432 (Dec. 1950).

Describes various weaves and provides information necessary for the weaving of the various fabrics.

Here's how to cut out jerked-in filling

W. A. Thomson, Jr. *Textile World 101,* 145 (March 1951).

Three steps should bring jerked-in filling defects under control: 1) check the thread cutters, knives, catchers, feelers, to make sure that all parts are working properly; 2) see that all parts that come into contact with the filling are smooth and free from rough parts; 3) see that the loom is timed properly, the shuttle boxed, and that too much power is not being used. An accompanying check list shows parts of C & K and Draper looms that should be checked to prevent jerked-in filling.

Letoff mechanism for looms

Richard G. Turner (to Crompton & Knowles Loom Works) USP 2 526 303, Oct. 17, 1950.

This invention relates to improvements in let-off mechanisms for looms and it is the general object of the invention to provide control means for the letoff which will insure smooth operation thereof.

In order to maintain proper tension in the warp threads of a loom it is necessary that the letoff mechanism exert uniform resistance to the forward movement of the warp threads. Many forms of letoff provide this resistance by means of weights which, however, vibrate considerably during loom operation with the result that the tension in the warp thread varies.

It is an important object of the present invention to provide a letoff with pneumatic tension means which is not materially affected by the operation of the loom, thereby insuring a smoother operation and a more uniform tension in the warp. As the diameter of the yarn on a warp beam decreases it is necessary to reduce the resistance to turning of the beam, since the latter requires a larger angular movement per pick of the loom, and it is a further object of the invention to provide a control for the penumatic system of a letoff mechanism which will permit variation in the resistance offered to turning of the warp beam.

If a loom is stopped temporarily as the result of breakage of either a warp or a weft thread it is desirable that the rearward tension of the warp be maintained, and it is a further object of the invention to control the pneumatic system for the letoff mechanism in such a manner that it will operate while the loom is temporarily at rest. This result may be accomplished by a pump or fan for the system operated by the loom motor and continuing to create pneumatic pressures so long as the motor is in operation.

When the loom is stopped for longer periods during which the motor is not operating it is desirable to be able to maintain a rearward force on the warp threads and it is a still further object of the invention to effect this result by means of a valve or the like which will automatically close the system to prevent changes of pneumatic pressures therein except for minor leakages during extended periods of loom stoppage.

In the weaving of certain fabrics so-called barre or bar marks occur extending across the cloth at irregular intervals along its length. These marks reduce the value of the cloth and are likely to be formed when the warp tension is above normal. It is sometimes difficult to determine

what part of the loom causes these marks and the variation in warp tension which is thought to cause them. It is believed, however, that some of the marks are caused by faulty operation of the letoff, especially those operating with weights acting to exert a rearward force on the warp threads.

At each beat-up of the lay a forward force is exerted on the warp the effect of which is to lift the usual weights. After the lay passes front center this force is diminished and the weights fall. If before the weights reach their normal low position another beat-up occurs the tension in the warp is determined by the kinetic energy of the falling weight which is greater than the static or potential dead weight which they would exert if at rest. The second pick is therefore beat in very close to the previous pick, and if this condition exists for several picks a bar mark will be produced. This effect is likely to occur where there is some rhythmic relation between the falling of the weights and the beat-up rate of the lay.

It is another cbject of the invention to eliminate the weights and in their place substitute a pneumatic tensioning means in which a large part of the kinetic energy of moving weighted parts or masses is eliminated. The elasticity of the air in the pneumatic cylinder also cushions sudden changes and furthermore permits a greater or quicker responsiveness to temporary increases in tension of the warp than is possible where weights are employed. The rise and fall of air pressure in the pneumatic system is not accompanied by complications due to kinetic energy, momentum and inertia of weights such as is found in the usual letoff mechanism.

Loom letoff ratchet lever

Edward C. Nichols (to Draper Corp.) USP 2 541 969, Feb. 13, 1951.

In a loom comprising a rotatable warp beam from which extends a warp sheet, means including a ratchet wheel and gearing driven thereby engaging the beam to rotate the same, the ratchet wheel being rotatable in a first direction to cause rotation of the beam to let off the warp sheet therefrom and in a second direction to cause rotation of the beam to wind on the warp sheet, and means including a pawl arranged to rotate the ratchet wheel in the first direction, manually operable means including a double-acting articulated, pawl lever adapted to be used in either of two positions, in one of which it engages the front faces of ratchet wheel teeth to move the beam in

one direction, and in the other of which it engages the back faces of ratchet wheel teeth to rotate the wheel and the beam in the opposite direction.

Method of and apparatus for weaving leno fabric

Hugh J. Carragher (to Powdrell & Alexander, Inc.) USP 2 541 745, Feb. 13, 1951.

In combination in a loom of the type which includes means for suspending leno weave while weaving plain fabric, the loom having doup needles for crossing doup warps with standard warps, and heddles for the standard warps, each standard heddle having an eye for the passage of a standard warp, each standard heddle also have an elongated slot for the passage of the corresponding doup warp, the slot being long enough to allow full shedding of the standard warp, during plain weaving, without substantial displacement of the doup thread from an inactive idle position.

Picker stick linkage and hydraulic check

George H. Hufford (to the Weatherhead Co.) USP 2 540 673, Feb. 6, 1951.

In a loom, a frame, rock shaft, and lay assembly, a picker stick and a picker affixed thereto, linkage means to mount the picker stick on said assembly so that the picker moves substantially in a straight line in the path of shuttle travel, the linkage means comprising an upper link extending downward from a point in the assembly below the picker and pivoted to the assembly and to the picker stick, and a lower link extending substantially horizontally outwardly from the assembly and pivoted to a lower portion of the picker stick, the lower pivot of the upper link being adjustable along the stick to bring the picker into the desired line of shuttle travel; the pivot of the lower link with the stick being adjustable along the stick to correct the path of the picker in compensation for the displacement of the upper pivot of the upper link from the line of shuttle travel.

Preliminary processing and weaving

Max Setiner. *Textile Industries 115*, 109-11 (Jan. 1951).

The continuous glass filaments, which go into Fiberglas yarns, have a diameter of about .00025 in., are extremely fine and highly flexible with virtually no stretch. A binder or size is applied during forming to bind the filaments together and to protect them, and two twisting operations are used to balance the yarn. The modern horizontal warper and creel with whirl or disc-type tention is suited for warping glass yarn, and the

type of loom developed for weaving rayon and other filament yarns is recommended for weaving glass yarn. Any type quiller, used for other continuous filament yarns, is suitable for winding glass yarns. Precautions in processing and recommended practices for warping and weaving are discussed.

Ratchet mechanism

Horace H. Burdett (to Draper Corp.) USP 2 534 572, Dec. 19, 1950.

A loom cloth take-up mechanism comprising, in combination, a shaft to be intermittently rotated, a ratchet wheel fixed on the shaft, a pawl carrier having a pivot thereon, a driving pawl mounted on the pivot and having a tooth and a weighted tail piece arranged on opposite sides of the pivot, and means supporting and imparting to the carrier alternating working and return strokes, the supporting means for the carrier being so guided that on working strokes the pivot approaches the ratchet wheel throughout substantially the entire stroke and the tooth rotates toward the carrier and on return strokes, the pivot recedes from the ratchet wheel for substantially the entire stroke and the tooth rotates away from the carrier and toward the ratchet wheel, whereby certainty of engagement of the tooth and the wheel during return strokes is assured.

Rayon weaving efficiency

Anon. *Textile Weekly 47,* 1448 (December 1, 1950).

See front section.

Recent applications of electronics

Anon. *Skiner's Silk & Rayon Rec. 24,* 1658, 1660 (Dec. 1950).

Increasing use of electronics in testers is briefly reviewed, of which the newest development is the debut of the electronically operated servo-mechanism, which is now being offered as a Servo-pack designed by Ferranti Ltd. and used for cloth guiding. Distributor of equipment: John Dalglish & Co., Ltd.

Selvage motion

Henry Cooper (to Steel & Alloy Tank Co.) USP 2 533 094, Dec. 5, 1950.

A selvage motion for a loom operatable to control the shedding movement of a plurality of selvage harnesses, comprising a plain selvage cam, a separate tape-selvage cam coaxial therewith, a treadle between the cams for operating the selvage harnesses in their shedding movements, a

cam follower, and means for removably supporting the cam follower on either side of the treadle in follower engagement with either of the cams, to produce selectively either a plain selvage or a tape-selvage.

Shipper mechanism

Elvin A. Mastriani (to Steel & Alloy Tank Co.) USP 2 533 130, Dec. 5, 1950.

In a loom, a shipper mechanism for connecting and disconnecting power to the loom including a shipper handle, a brake mechanism for stopping the loom including a brake handle, means automatically locking the handles for movement in unison from power connecting brake releasing positions to power disconnecting brake applying positions, and means for releasing the locking means automatically upon movement of the brake handle from brake applying position towards brake releasing position, to permit the brake handle from brake applying position towards brake releasing position, to permit the brake handle to be moved into brake releasing position, while the shipper handle remains in power disconnecting position.

Shuttle

Thomas B. Mortimer (to Patchogue-Plymouth Mills Corp.) USP 2 535 806, Dec. 26, 1950.

A shuttle having a back wall, a substantial section of the back wall of the shuttle constituting a removable and replaceable panel, and a key for holding the panel in proper position.

Shuttle guard. Harold E. Schaller (to Scotland Mills, Inc.) USP 2 532 950, Dec. 5, 1950.

Shuttle guard for a loom having a lay provided with a reed cap comprising a plurality of bearing brackets attached to the side of the reed cam next to the fell of the cloth being woven, an elongated rod oscillatably mounted in the bearing brackets, second rod disposed in spaced parallel to the first rod and having its ends bent at right angles to the longitudinal axis of the second rod and secured to the first rod, a third rod disposed in spaced parallel relation to the second rod and having its ends bent at right angles to the longitudinal axis of the second rod and secured to the second rod, and a plurality of cross rods secured between the first, second and third rods, a medial portion of the first rod having a collar fixed thereon, a torsion spring surrounding the first rod and having one of its ends anchored in the collar and having its other end anchored to the reed cap, the spring being biased to move the third rod upwardly away from the warp threads of the

loom, the first rod having a second collar fixed thereon and having an offset portion extending from one end thereof, a loose collar on the first rod and spring means urging the loose collar towards the end of the second fixed collar, the loose collar also having an offset portion on its end adjacent the second fixed collar, and against which the offset portion of the second fixed collar is normally adapted to rest as a result of the torsion spring, and means for moving the loose collar away from the second fixed collar to allow the torsion spring to raise the shuttle guard on its pivoted first rod to substantially vertical position, and releasing of the loose collar latching the shuttle guard in raised position.

Shuttle guard

Harold E. Schaller (to Scotland Philip Worth Robinson (T. Bond Worth & Sons) USP 2 537 158, January 9, 1951.

In the manufacture of a woven fabric in which a pair of double shots of weft are inserted by a pair of weft needles between each shedding operation of the warps, a method of binding in such double shots of weft to form a selvedge edge at the edge of the fabric remove from the edge at which the weft needles first enter the fabric, which method comprises the steps of inserting a loop of selvedge thread from a bulk thread carrier through a pair of weft loops, holding said inserted selvedge thread loop in such position that it is looped around the line defining the path of its insertion, inserting the next succeeding selvedge thread loop through the next succeeding pair of weft loops and through the selvedge thread loop last inserted, and subsequently releasing the latter.

Smallwares weaving technology—2

A. Thompson & S. Blick. *British Rayon & Silk Journal, 27,* 54-56 (February 1951).

Ply fabrics are one of the important classes of fabrics made by the narrow-goods industry. They vary from ladies' wrist-watch bands to multi-ply belting for industrial uses. Typical samples of these fabrics are illustrated, with construction details and designs, including belting, multi-tubular fabrics, double twills, a four-ply tubular fabric, and other samples.

Stop loom stops in warp preparation

Engene P. Schremp. *Textile World 101,* 102-3 (Jan. 1951).

Loom stoppages are keys to better loom operation and efficiency. Proper planning, preventive fixing, and pre-assembly of parts for unit replacement are practical methods that can be used by

the weave room to obtain greater efficiency. Other details of practical suggestions offered: (1) proper knot tying from spinning through warping; (2) sizing of single warp yarn worsted, yarn made from low-grade hairy stock, and yarns for hard-woven fabrics; (3) drop wires may be dropped while the warp is being drawn in; (4) looms should be prepared and kept in adjustment; (5) spare parts may be made up in units for quick replacement, such as spare upright shafts made up complete and ready for installation. Four photographs of these methods.

Studies in textile design. IV. Herring-bone weaves

Anon. *Textile Recorder 68,* 77-8 (Dec. 1950).

Departures from straight twill weaves are discussed with emphasis upon herringbone weaves, such as 8x8, 6x6, 10x10, 12x12, and 16x16 constructions. Photographs and designs are given.

Tension device for shuttles

Anon. *Daily News Record,* (March 12, 1951).

See front section.

Treadle link for loom harness adjustment

Anon. *Textile Industries 115,* 177 (Mar. 1951).

In a letter to the editor a diagrammatic sketch of a treadle link for loom harness adjustment is shown. Advantages of this treadle link in operation on looms is noted: (1) straps maintain even tension on upward and downward motions; (2) the double strap arrangement prolongs the life of straps, and (3) more accurate harness adjustment is possible by moving the buckle of the strap from one hole to another.

Weaving problems

D. C. Snowden. *J. Tex. Inst. 41,* P832-42 (Dec. 1950).

Discusses three problems in weaving which are considered as being most important in producing quality materials. These problems include: (1) control of warp during weaving, (2) laying of filling between warp threads and (3) mixing of filling yarns to reduce or possibly eliminate filling bars and streaks.

Whip roll mechanism for looms

James E. Repass (To Draper Corp.) USP 2 535 515, Dec. 26, 1950.

For a loom of the type having a warp beam, a let-off mechanism and a whip roll through which changes in tension of the warp threads drawn from the beam and passing over the whip roll affect the let-off to control the unwinding of the

thread from the beam, an improved whip roll biasing means comprising a clock type spring, a casing means substantially enclosing the spring, means forming a part of one casing member to which one end of the spring is attached, an anchor for the other end of the spring, and an adjusting means effective for altering the relative position of the casing member to which the spring is connected thereby to adjust the tension therein and thus, its biasing effect upon the whip roll.

Knitting C 3

Drive mechanism for knitting machines

Emil J. Berger & Howard K. West (to Dexdale Hosiery Mills) USP 2 540 645, Feb. 6, 1951.

Drive mechanism for a straight knitting machine of the character described having a drive shaft, knitting instrumentalities deriving their movements from the drive shaft, and an intermittently racked narrowing chain, the drive mechanism comprising a high speed electric motor for normally powering the machine, a normally inactive slow speed electric motor mechanically coupled with the high speed motor; a drive connection between a fixed wheel on the shaft of one of the motors and a shelf-releasing overload clutch wheel on the drive shaft of the machine, an electric wiring circuit for the motors, and current flow control devices in the circuit including a switch constructed and arranged to be actuated from the narrowing chain to automatically cut out the high speed motor and to cut in the slow speed motor for immediate reduction in the speed of the machine and slower operation during the narrowing phases of a knitting cycle.

Earned bonus plan pays in knitting mill

E. Dalton White. *Textile World 101,* 122, 123 (March 1951).

Production increased at Lawler Hosiery Mills, and first-quality work rose from 87 to 95% as a result of a bonus system. Production rates are set for 100% machine efficiency, and bonus payments are graduated from 100% to a minimum percentage. Quality is tied into the bonus. If a knitter holds her defects to less than 2% of her total production, she receives maximum bonus. If defects increase above the 2% level, her bonus rate drops.

35% of the loopers, 20% of the string knitters, and 50% of the transfer operators receive bonuses regularly. Tables of knitting production standards, bonus-pay schedule, and bad-work penalties

illustrate the method of using the system.

Elements of knitwear design

W. Davis. *Hos. Times 23,* 42, 47-8 (Nov. 1950).

Describes the means by which many ripple variations can be obtained in knitwear fabrics. Diagrams.

Faults and status in hosiery

MCH Lint. *Melliand Textilber. 31,* 701-4 Oct. 1950); *in German.*

Delicate hose of filmy texture are commonly dyed in the form of the finished goods, as is well known. The author describes the difficulties that present themselves thereby with which the hosiery finisher and the dyer have repeatedly to contend, and points out that the dyer has no influence on a number of causes of the faults and stains that make their appearance, although he is mostly held responsible for them. He further calls attention to the numerous possibilities that a hosiery dyer has of preventing complaints and avoiding any deterioration of the quality of the fine filmy hose by the numerous processes—which are mostly tedious and sometimes expensive—for determining the cause of faults and stains, as well as their removal.—By unflagging cooperation with textile experts, dyers and hosiery knitters the hosiery dyer has left no stone unturned to market high-class hose that are dyed to perfection and free from faults and stains. Through cooperation in that way the hosiery industry in Saxony has acquired a world-wide reputation.

Hosiery size control

Anon. *J. Roy. Stat Soc. 12,* 8 (1950).

Brief reference, in paper on organization and functions of Institute of Statistics of the University of North Carolina, to study of control of length of hose. The present task is to determine whether final length can be satisfactorily controlled by a definite number of rows of stitches per inch.

Knitted glove designs are made by simple repeats

Albert M. Young, Jr. *Textile World 101,* 108-9 (Jan. 1951).

The principles of applying a design to a glove knitted on a model T.W.S. Brinton machine are reviewed, and sketches are shown of a float design pattern and method of producing the pattern.

Knitter-fixer team sparks half-hose program

E. Dalton White. *Textile World 101,* 157, 159

(Feb. 1951).

A system of maintenance has improved quality and reduced waste to less than 5% at Villa Rica Mills. The procedure is on a cooperative basis between knitter and fixer. The duties of each are outlined. By emphasizing detection of the first signs of wear, adjustment, or improper knitting, the mill had fewer machine stops, less adjustments, and less down-time for repairs.

Knitting machine

Aaron S. Staff (to Texagon Mills Inc.) USP 2 534 184, Dec. 12, 1950.

In a knitting machine having a row of needles, the combination of a shaft extending lengthwise of the row and mounted for axial rocking movement, a rod mounted on the shaft for endwise movement lengthwise of the row of needles, a guide bar attached to the rod, a plurality of thread guides carried by the bar, a plurality of blocks mounted in spaced relation along the shaft, each block having a plurality of slots convergent toward the needles, a plurality of strips extending lengthwise of the row of needles, each strip being mounted for endwise movement in corresponding slots in the several blocks, and a plurality of thread guides mounted in spaced relation along each strip, the guide eyes of the guides on the strips all lying substantially in alignment.

Knitting needle

Edson P. Foster, USP 2 541 580, Feb. 13, 1951.

A knitting needle comprising a body member having a main shank portion and a spring hook member, said spring hook member having a hook portion at one end thereof and being secured along part of its remaining portion to the shank portion of the body member, intermediate ends thereof; the hook member being movable relative to the body member to a position in which the hook portion is closed by the body member.

Modified threading

Anon. *Textile Industries 115,* 91 (Mar. 1951).

In making the heel and toe of seamless nylon hosiery on Model K and similar machines, it is desirable to have the two ends of nylon twisted together to prevent separation. A practical suggestion submitted by a contributor consists in feeding the ends from cones mounted one above the other. A tube is substituted for the yarn holder in the top cone through which the yarn off the bottom cone is directly drawn, and yarn from the top cone twists around it. A tube threader, easily made in the mill shop, extends through the tube and has a small loop on top for hanging on the machine when not in use and a flat bottom end with a small diagonal slot to hold the yarn in the threading operation.

Perlon knitting

Anon. *Underwear & Stockings 4,* 8 (Dec. 1950).

Discusses the appearance and wearing properties of, and the methods of strengthening knitting and fashioning Perlon hosiery. Illustrations.

Rubber yarns in knitted articles

Anon. *Hosiery Trade J. 62,* 48 (Dec. 1950).

Discusses the many methods of usage of rubber yarns in knitted articles, with particular reference to surgical stockings and lace-stitch narrow fabrics.

Rubber-core yarns, employment (knitwear)

Anon. *Hosiery Trade J. 57,* 26 (Nov. 1950).

Review of applications of rubber-core threads, including swimwear, waist bands of underwear, roll-ons, and tops of ankle, half- and three-quarter hose.

Strand feeding mechanism

Robert H. Lawson (to Scott & Williams, Inc.) USP 2 534 459, Dec. 19, 1950.

A duplex furnishing mechanism comprising a pair of strand-feeding cones having truncated smaller ends oppositely directed and disposed concentrically with respect to a common axis, separate rotary strand-feeding truncated cones in yielding contact with the oppositely directed cones and cooperating to advance different strands at independent rates of linear feed, depending on the point of contact therewith of the particular stand, while one cone of each pair is positively driven at the same speed.

The Marvel mending method for full-fashioned hosiery

Anon. *Textile Industries 115,* 100-1 (Mar. 1951).

Four Marvel mending machines, installed at Marietta Hosiery Co., do a better and faster job than when the mending was done by hand with reduced mending costs and labor turnover. The machine consists of an electric motor and reduction gear, which drives a flexible shaft attached to the mender head. The mender head has 12 wire points arranged like spokes in a wheel and bent at an angle to prevent snagging the hose.

The power supply is controlled by a foot-operated switch. In mending a pick or pull thread the rotating points are applied so that they lightly strike in line with the loop formation so as to equalize the tension on the damaged threads. Maintenance on the machine is negligible. Mfr: Marvel Specialty Machine Co.

Twisted yarn-like structure and method for producing it

Wirt L. Thompson (to American Viscose Corp.) USP 2 535 376, Dec. 26, 1950.

A yarn-like structure comprising a tricot knit fabric having from one to four central wales extending longitudinally of the structure and having yarn loops extending laterally from the central portion of the fabric, the fabric unit being twisted at least one turn per inch.

Vibration damper for ribbers

Anon. *Textile Industries 115,* 112 (Jan. 1951).

Supports for the tips of center rods on small diameter ribbers, made from 2 x 4 lumber and erected at one knitting mill, have made possible 20% higher speeds and larger packages on the ribbers. The center rod supports are suspended from ceiling beams over the lines of knitting frames, and the tips of the rods revolve within bearings inserted in the supports. Rods rotate axially true, thus eliminating vibration.

Warp knitting machine

Fred C. Sorton (to Whitin Machine Works) USP 2 533 061, Dec. 5, 1950.

In a warp knitting machine having knitting mechanism including needles a guide bar on which the yarn guides are mounted, and a rock shaft carrying the guide bar, characterized by the fact that the guide bar is hinged to the rock shaft on an axis substantially parallel to the axis of the rock shaft, for swinging movement to a threading position remote from the needles, and a holder is provided to hold the guide bar in the remote threading position.

Warp knitting technology

D. F. Paling. *Brit. Rayon & Silk J. 27,* 55-7 (Dec. 1950).

"Laying in" practices on warp knitting machines enable the designer to incorporate extremely thick or irregular fancy yarns into the fabric. Ordinarily, such yarns would be too thick or irregular to be used, since they would not pass under the needle beards. The principles of all laid-in fabrics are summarized as:

(1) If the back guide bar makes neither underlaps nor overlaps, ie., each guide continues to swing between the same pair of needles, then the laying-in threads will not connect with the ground structure but will float continuously on the face of the fabric.

(2) If the underlapping movements made by the back guide bar are equal in terms of needle spaces to the underlap made by the front bar, and providing that the underlaps of both bars are always made in the same direction then the laying-in threads will not connect with the ground structure but will float continuously on the back of the fabric.

(3) If the underlapping movements of the two bars are made in opposite directions, or if the underlaps made by the back bar are in the same direction as those of the front bar but of larger dimensions, then the laying-in threads will remain at the back of the fabric and will be connected to the ground structure by certain threads of the front bar. If the underlap of the back bar is sufficiently large, the laying-in threads will lie horizontally in the fabric.

Warp knitting machine

Fritz Lambach (to Robert Reiner, Inc.) USP 2 540 128, Feb. 6, 1951.

In a warp knitting machine: at least one series of needles extending longitudinally of the machine, means for feeding warp yarns to the needles, reciprocable flexible transmission means extending substantially parallel to the series of needles, at least one filler thread carrier selectively fixable on the flexible transmission means, a rotatable drum, a drive for rotating the drum, a pattern chain laid around the drum, and transmission actuating means arranged for actuation by the pattern chain and associated with the flexible transmission means for imparting periodic strokes to the flexible transmission means with filler thread carrier mounted thereon so as to lay filler thread adjacent the series of needles.

Yarn feeding mechanism for knitting machine

Edward Victor Stibbe and Bertram Henry West (to G. Stibbe and Co. Ltd.) USP 2 537 000, January 2, 1951.

In a knitting machine, in combination, a series of needles, a structure adapted to carry a supply of yarn, a feeder through which yarn from the said supply is passed to the needles at a knitting location, and a yarn feeding mechanism comprising a single tapered roller about the periphery of which yarn is wrapped on its way to the said

feeder, means for positively driving the tapered roller so as to exert, frictionally, a drawing-off action on the yarn, guides adapted to maintain the wrap of the yarn about the tapered roller, and a movable component which carried the said warp guides and is adapted to be influenced by variations in tension of the yarn during knitting whereby, as a result of such variations, the wrap guides are displaced to vary the position of the wrap of the yarn lengthwise of the tapered roller so that the wrap is increased or decreased and the rate at which the yarn is drawn from the supply is correspondingly varied as occasion demands.

Special fabrics C 4

Dynel blankets prove satisfactory

C. A. Settersfrom. *Am. Wool Cotton Reptr. 65*, 76-7 (Mar. 15, 1951).

In discussing the pros and cons of dynel blankets, it is noted that the properties of dynel so parallel wool that it is being evaluated by the government and in some civilian uses on a comparative basis. Good features include natural warmth; mothproof; mildewproof; resistant to stains; moisture; acids; alkalies; salts; etc. Problems of shedding of loose fibers, heat sensitivity of the fiber, anti-static treatments for dynel which are removed by dry cleaning, etc., are being studied and better treatments are being developed.

Woven fabric

James A. Fligg. USP 2 541 231, Feb. 13, 1951.

In a textile fabric, a base web including parallel wefts and weft-uniting warps, interwoven strands each exhibiting a generally warp-wise series of upward weft-straddling loops interspersed with downward warp embracing loops, and decorative weft threads bound down to the base web by the upward loops and forming the wearing face of the fabric.

STANDARD FINISHING D

Activating solutions for bleaching

Hermann Baier. *Melliand Textilber. 32*, 141-46 (Feb. 1951); *in German.*

The author deals with the various methods of activating solutions of sodium chlorite for bleaching purposes—e.g. by means of acid, hypochlorite or chlorine, persulphate, aldehyde. The chlorite bleach activated by acid is superior to activation by hypochlorite in respect of bleaching effect, breaking down effect, and gentle treatment of the

fiber, and is the method of choice in practical working. The other methods have not as yet acquired any importance in the bleaching of textiles. This chemical processes that take place in activation by means of formaldehyde are expounded.

An introduction to textile chemistry

By J. T. Marsh. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 552 pages. March 8, 1951. Price $5.50.

A book designed to fill the need created by the many recent developments in chemical aspects of finishing, "An introduction to Textile Chemistry" is not restricted to wool, cotton, or any other single fiber. It covers the entire field of varied fibers. The author uses two criteria in choosing the finishes to be covered by the book: commercial importance and scientific and technical interest.

The book is said to be the first book to treat all the new finishing developments in a systematic way. Though the emphasis is on recent discoveries in the field, there is also a revaluation of the older commercial processes in the light of the more recent discoveries.

Continuous treating unit sets yarn permanently

Fred H. Muller. *Textile World 101*, 132, 133, 236 (March 1951).

A new machine treats cotton yarn chemically, drys it, and maintains controlled tension throughout the process at Electric Hose and Rubber Co., Wilmington, Del. Creel of 50 ends of yarns is processed, 50 ends being wound into 50 packages automatically.

Developments in the Cotton, Rayon and Silk Industries in Germany During the Period 1939-1945

British Intelligence Objectives Sub-Committee Report No. 13. British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.; 178 p.; price 75 cents. *Textile Industries 115*, 191 (Mar. 1951).

This report includes various aspects of the industry, including dyeing, bleaching, and finishing.

Hunter's new shrinking range

Anon. *Amer. Wool Cotton Reptr. 65*, 44 (Feb. 22, 1951).

The Unishrunk Continuous Shrinking Range, the new London type shrinking unit, has a unique horizontal conveyor carrying the cloth in a completely tensionless position and a patented airflow insuring even drying. It can be operated by

one man, and gives 4 to 10% shrinkage in the warp with minimum width shrinkage at continuous speeds from 15 to 20 yards a miunte. Mfr: James Hunter Machine Co.

Modern temperature control practice

Anon. *Instrum. Practice 4*, 672-3 (Oct. 1950).

Review of modern methods and instruments for temperature control of heated baths and vats. Diagrams and illustrations.

New soaper boosts efficiency

Anon. *Am. Wool Cotton Reptr. 65*, 11-12 (Mar. 1., 1951).

A new compartment type open soaper or washer installed at the U. S. Fnishing Company's plant at Norwich, Conn., is reported to have increased productive efficiency 100%. Cloth is fed through a set of Mecco guides and draw rolls to the first bowl and progresses through vertical passes over stainless steel top and bottom idler rolls, then over a curved rubber expander to the main nip rolls which can be furnished with either 3 or 5-ton pressure. Rugged cast iron frame supports all bearings and rolls so that any part can be disassembled without disturbing any other part of the unit. Tanks are made of stainless steel with rounded corners and bottom, and a skimmer trough is furnished in each tank. Pressure on the main rolls is supplied through Stabilflo motors, and the final squeeze is accomplished through a heavy set of Hunter Model G pneumatically controlled squeeze rolls. Finally, the cloth goes through a compensating gate and is delivered to a set of 40 Unisteel dry cans. Mfr: James Hunter Machine Co.

DYEING AND PRINTING E

AATCC hears report on dyeing of Chemstrand acrylic fiber

Anon. *Daily News Record*, March 19, 1951).

See front section.

Color predictor for pigments

Edwin I. Stearns, Jr. (to American Cyanimid Co.) USP 2 540 798, Feb. 6, 1951.

An apparatus for producing a physical quantity corresponding to the reflectance of a plurality of colors comprising a plurality of pigments, which comprises in combination means for generating at a plurality of wavelengths in the visible spectrum physical quantities proportional to concentration of the pigments, and physical quantities proportional respectively to the additive light absorption function of each pigment and the additive light scattering function of the same pigment, means for combining the quantities proportional to concentration and additive light absorption function and concentration and additive light scattering function respectively to produce additive physical quantities proportional respectively to the product of concentration by additive light absorption function and concentration by additive light scattering function for each pigment, means for summing the two sets of additive physical quantities for the pigments at each wave length, means for obtaining a ratio of the sums of the two sets, and means for transforming the ratio of the sums into a physical quantity corresponding to reflectance.

Dye rayon cakes — and save money

L. L. Walmsley. *Textile World 101*, 126-27 (March 1951).

Comparison of cake dyeing with skein dyeing shows that a mill can save about 11⅔ cents per pound of yarn by dyeing in cake form. Cake-dyeing machinery is now available for direct dyeing of 600, 300 and 150 denier viscose on 1.1. pound cakes.

Dyeing acetate staple fabrics

Anon. *Skinner's Silk & Rayon Record 25*, 106, 108 (Jan. 1951).

That dyeing acetate rayon fabric is governed considerably by the character of the individual filaments in the fabric is clearly shown by the necessity for devising a dyeing process as described in B. P. 645,987. It may be recalled that for rapid dyeing acetate rayon fabrics, a special process is available in which the fabric is not treated with an ordinary aqueous solution or dispersion of the dye for upwards of one or two hours, but is impregnated with a dye liquor containing a preponderance (say 60% to 70%) of ethyl alcohol, water and the dye, and is then within a few minutes washed with water. By this special method dyes (Including many which by ordinary dyeing processes could not be satisfactorily applied because they would not be absorbed) can be quickly applied to yield colorings of quite good washing fastness. So far this process has been used mainly for fabrics woven from continuous filament yarns. Extension of the process to dyeing fabric woven from the corresponding staple yarns has revealed unforeseen difficulties. The method has had to be modified to overcome these.

In applying the usual rapid dyeing process to acetate rayon staple fabric (this is generally

scoured to remove sizing impurities before dyeing) it is found that there are many protruding fiber ends in the fabric surface, and these subsequently become much more deeply dyed than those parts of the fiber which are buried within the fabric structure. It is to avoid this that modification of the dyeing process has been necessary.

The simple discovery has been made that the protruding fiber ends do not, in the finished fabric, have a deeper shade if the scouring or desizing treatment is carried out after dyeing instead of before. It is probable that by dyeing the sized fabric in its loom state there are fewer protruding fiber ends to become deeply colored, and also that in the scouring after dyeing any deeply-dyed fiber ends receive a more thorough scouring, and so lose their absorbed dye.

Dyeing acetate rayon

Karl Wojatschek. *Melliand Textilber. 31,* 61-63 (Jan. 1951); *in German.*

This article describes the most important practical methods of dyeing textiles containing acetate rayon and discusses various advantages and drawbacks attending their application.

Dyeing of terylene polyester fiber

E. Waters. *J. Soc. Dyers and Colorists 66,* 609-15 (Dec. 1950).

Cites the dyeing characteristics of terylene and then describes dyes and various methods of dyeing in order to insure proper penetration and uniformity of color.

Dyeing unions containing nylon

J. G. Grundy. *J. Soc. Dyers Colourists 67,* 7-17 (Jan. 1951).

Discusses dyeing of nylon in union with acetate rayon, silk, wool and cellulosic fibers. Describes how the above unions can be dyed in two-colored effects by means of one and two bath processes and how the dyeing requirements can be obtained by means of the judicious choice of dyes and normal dyeing techniques.

Dyeing of vinyl and vinylidene resins with acid dyes dissolved in certain glycol ethers and esters

Jackson A. Woodruff (American Viscose Corp.) USP 2 537 177, January 9, 1951.

The method of dyeing fibers, yarns, and other structures formed from a resin selected from the group consisting of hydrophobic vinyl and vinylidene resins having a water absorption and retaining capacity not greater than 1% which comprises dyeing the resin structure, at temperatures below the shrinkage temperature for the resin, in an anhydrous medium consisting of a solution of a water-soluble acid dye which has no affinity for the resin in a swelling liquid for the resin which, at temperatures below the shrinkage temperature for the resin, is absorbed by the resin structure in an amount of from 20% to 50%, based on the weight of the structure, without dissolving the resin, and which dissolves the dye in concentrations of at least .01%, said liquid being selected from the group consisting of ethylene glycol mono-ethyl ether, ethylene glycol mono-methyl ether, ethylene glycol mono-benzyl ether, diethylene glycol mono-acetate, diethylene glycol mono-ethyl ether, and diethylene glycol mono-methyl ether, to thereby cause the water-soluble acid dye to be dispersed within the body of the resin structure, rinsing the dyed structure with aqueous media to remove excess dye from the surface of the structure without loss of the dye dispersed within the body of the structure, and thereafter drying the dyed structure.

Dyer sold on lab steamer

J. H. Henderson, Jr. *Textile Industries 115,* 92-3, 206 (Mar. 1951).

The mill procedure for vat dyeing woven goods at Russell Mfg. Co. is: pad on the pigment, flue dry, pass through chemical pad into steamer unit, cold rinse, oxidize, soap, rinse, and dry, with the heart of the operation being the steamer. The main problem in their procedure was color matching, and so a laboratory steamer, including a chemical pad, steamer unit, a set of squeeze rolls at the exit, and a small variable-speed power unit, was provided. By duplicating mill conditions in the laboratory with this steamer, time, labor, cloth, and chemicals can be saved in matching shades.

Dyestuff compositions comprising esterified vat dyes and basic pyrazolones

John Taras (to General Aniline & Film Corp.) USP 2 540 799, Feb. 6, 1951.

A dyestuff composition comprising a salt of an acid polybasic acid ester of a leuco vat dyestuff, and basic pyrazolone compound.

Effect of "Zelan" AP Paste and "Aridex" L Conc. on dyed nylon

Anon. *Calco Tech. Bull. 6,* 209-18 (Dec. 1950).

A selective range of CHROMACYL, chrome and direct dyes was applied in light and full shades to nylon piece goods. Portions of each were treated to retain approximately 3.0% of the fiber weight

of ZELAN AP Paste and 5.0% of ARIDEX L Conc. Treated and untreated dyeings were tested to determine the effect of these treatments on the shade, light (Fade-Ometer) and crock fastness of the individual dyeings.

Neither ZELAN AP Paste nor ARIDEX L Conc. had a significant effect on the light and crock fastness of the dyes evaluated. The shade of the direct colors was altered slightly; those of the chrome and CHROMACYL colors were changed appreciably in some cases.

To determine whether or not any of the shade changes might have been caused by the curing temperature (275° F. for ZELAN and 250° F. for ARIDEX), a set of control dyeings was exposed in the curing oven under conditions similar to those used in making the ZELAN treatments. In no case did this cause a significant change on any of the dyeings.

Included in the experimental data is a table showing the effect of treatment with ZELAN AP Paste and ARIDEX L Conc. on the shade, light (Fade-Ometer) and crock fastness of the individual dyeings.

Hot oil piece goods dyeing process

Anon. *Am. Wool Cotton Reptr. 65,* 63 (Mar. 15, 1951).

A new dyeing process for dyeing piece goods, announced by General Dyestuff Corp., uses the Williams units and is recommended for dyeing vat dyes, sulfur dyes, etc. More economical handling of short runs, better shading, better appearance of dyed material, greater stability of dyes, and time of development decreased are advantages that are reported. Essentially the method consists in applying the dyes by padding, passing the cloth into a hot white mineral oil, and removing the oil by passage through a bath containing Igepal. The usual finishing operations follow.

Modified azo dyestuffs

Paul Arthur, Jr. (to E. I. du Pont de Nemours & Co.) USP 2 540 705, Feb. 6, 1951.

A process for preparing a modified azo dyestuff which comprises dissolving in strong sulfuric acid of at least 80% concentration, at a temperature of from 10° to 50° C., an azo dyestuff containing at least one azo group which is a substituent in an aromatic ring having at least one nuclear hydrogen and at least one hydroxyl group, adding thereto per mole of the azo dyestuff from 0.5 to 5 moles of a member selected from the class consisting of formaldehyde and substances generating formaldehyde, and subsequently drowning the reaction mixture in water.

New dyeing and finishing plant features modern engineering

E. Dalton White. *Textile World 101,* 121, 290 (March 1951).

Gregg Dyeing and Finishing Mill at Graniteville, S. C., contains several engineering innovations: single story construction on three levels, continuous processing throughout, efficient exhaust and ventilating system, hot waste system that heats fresh water, as well as sound planning and modern equipment. An elaborate exhaust system provides hoods over all machines, carries away all fumes, heat, and steam vapors. To prevent condensate on the underside of the roof, the air system circulates warm air over the area.

Perlon: dyeing with vat dyes

Joachim Müeller. *Melliand Textilber. 30,* 147-52, 199-201 (1949); *in German.*

Fully synthetic fibers may be dyed with a number of wool and silk dyes. They show some sensitivity to acids and great alkali resistance and are suitable for dyeing with acetate rayon dyes. The effect of temperature was obtained and led to experiments on the vat-dyeing of Perlon filament. Two principal methods of dyeing are described and absorption, effect of temperature and exhaustion are examined for a number of dyes. A table gives values of exhaustion with time and several agents, another records fastness to light, washing and rubbing. Uniform coloring can be obtained by slowly increasing temperatures; the exhaustion method cannot be applied to Perlon. With the same dye, Perlon and viscose rayon show shade differences, which are examined for several colors. Dyes for Perlon are then discussed in detail and classified according to their chemical properties. The fastness to light of mixed dyes is dealt with and a short list if the most suitable dyes is given. A number of graphs show the affinity of Perlon and Vistra in relation to temperature and time. Both filaments may be dyed together. A list of dyes to be used for shades from yellow to black is given.

Pigment compositions for pad dyeing

Joseph M. Kuhn (to The Sherwin-Williams Co.) USP 2 539 914, Jan. 30, 1951.

A pigment composition of the lacquer-in-water type for pad dyeing, and having in the lacquer phase a volatile organic solvent immiscible with water, a pigment, a binder comprising ethyl cellulose and a resin selected from the group con-

sisting of urea formaldehyde and melamine formaldehyde, and in which the ration of ethyl cellulose to resin in the solution is 1 to between 1.06 and 4.

Polyamides: dyeing with acid dyes

E. Elöd & G. Fröhlich. *Melliand Textilber. 30,* 103-06 (1949).

It has been found that the fixation of acid by polyamides increases with falling pH values. There is a break in the curve at pH 2.2-2.5 at which the molecular weight can be calculated from the amount of acid bound. The values tally with those found by viscometry. The swelling of nylon fibers with changing pH values is at its lowest in the same region. The absorption of acid and substantive dyes by Perlon, Perlon L and nylon at pH 3 has been examined with 7 different dyes. Tables and graphs show absorption with time for several pH values.

Printers blankets and undercloths: maintenance

W. Aroth. *Melliand Textilber. 30,* 157-58 (1949) *in German.*

Under-cloths for textile printing must be of a very dense fabric and of accurate dimensions to avoid stains on the blanket. The surplus color should be wiped off the roller, this will prevent wear of the cloth edges. Cleaning should be regular, particularly with acid colors. A properly maintained cloth should last for 100,000 meters. With blankets, too, the importance of cleaning is stressed and methods of regaining and joining cotton and rubberized blakets are described. All seams must be strong, evenly tensioned and flat. The maintenance of the whole machine plays an important part in prolonging the life of the blanket, which should last for million meters of printing.

Printing thickenings: behavior on steaming

Robt. Haller. *Melliand Textilber. 30,* 154-56 (1949) ; *in German.*

Thickenings are examined miscroscopically to ascertain their disposition before steaming after passing through a Mather-Platt ager and after an hour in a cottage steamer. The various starch, gum and other thickenings are made visible by reagents and these and the dye distribution are studied. A reagent is given for each of the 5 thickenings. The author recommends a way of applying the paste to the cloth sample. The microscopic pictures are discussed and conclusions as to the effiicency of fixation and color intensity are drawn.

Photographic process for dyeing of textile materials

Sam Charles Slifkin (to General Aniline & Film Corp.) USP 2 541 178, Feb. 13, 1951.

A method of reproducing on a textile of regenerated cellulose a multi-colored pattern containing the colors red, green and blue by photoprinting.

Process for improving vat dyed nylon fibers

William Henry Sharkey (to E. I. du Pont de Nemours & Co.) USP 2 541 831, Feb. 13 1951.

A process for obtaining an improved dyed nylon fiber, the process comprising dyeing the nylon fiber with a vat dye, and then subjecting the dyed fiber to alternate heating, at a temperature from 100° C. to 150° C. in a mixture of water and aliphatic polyhydric alcohol which contains from 10% to 90% of the alcohol, the alcohol having from 2 to 6 carbon atoms and containing from 2 to 3 alcoholic hydroxyls, and cooling of the fiber in an inert medium to a temperature of from 98° C. to 0° C., and continuing the alternate heating and cooling until the fastness to light and to washing and to rubbing of the dyed fiber is substantially increased.

Practical wool dyeing

Karl Wojatschek. *Melliand Textilber. 32,* 149-54 (Feb. 1951) ; *in German.*

This study deals with the field of wool dyeing from the viewpoint of the practical dyer. A discussion of the fiber protection agents is followed by a description of the preliminary treatment of the material to be dyed, in so far as that belongs to the actual province of the dyer. Then follows a description of the chief present-day dyeing methods. The ranges of dyestuffs most commonly used and a number of auxiliary agents produced by Swiss and German manufacturers are tabulated. Finally, a few brief hints are given on the dyeing of wool in various stages of processing.

Roller printing problems—1

Anon. *Textile Mercury & Argus 124,* 192-195 (February 2, 1951).

One of the printer's constantly recurring problems in copper roller printing is the fact that roller surfaces are easily damaged by hard particles. This problem is described, and methods of avoiding the occurrence are treated from the following aspects: rollers; print pastes, colors, and chemicals; water; cloth, backgreys; and chromium plating.

Roller printing problems—2

Anon. *Textile Mercury & Argus 124,* 240, 243 (February 9, 1951).

Practical guidance for the printer in the handling of chemicals such as pigments, very dirty natural gums, and the storage of bags to avoid grit and other impurities in the mixing of pastes. Water is also said to be a source of impurities such as sand, as is the cloth itself and the backgrey. Corrosion of the doctor blade edge is described as a common fault.

Steaming processes of prints

Herbert Barth. *Melliand Textilber. 31,* 707-10 (Oct. 1950); *in German.*

Not only the chemical, but also the physical processes that take place during the steaming of prints play a decisive role. Prints with vat dyes make particularly high claims on the steaming process. The reduction and absorption processes that thereby take place depend upon a number of factors, such as the composition of the printing colour, the area printed and its moisture content, the type of fiber and the nature of the goods as well as the velocity (throughout) and the distribution of the steam in the steaming apparatus or ager, the duration of steaming or the rate at which the goods are run through. In order to secure the most favorable steaming conditions, all these factors, which are of their very nature variable, must be given due consideration and strictly supervised. For that reason the author discusses their influence in detail and hints at the possibilities of keeping them under control. Unlike the vat dyes, conditions are much simpler when steaming prints with water-soluble dyestuffs, but here too the absorption processes are of similar importance as with vat dyes. It is therefore essential always to devote the same attention to the physical processes and to eliminate errors as far as possible by suitable supervision.

Studies in wool-dyeing—Part IV

G. N. Bhat, A. N. Kothare, & V. V. Nadkarny. *Indian Tex. J. 61,* 173-76; 163 (Dec. 1950).

Provides data showing the effect of wetting agents at various concentrations on the exhaustion of dye-baths, conditions of dyeing and the effect of acid concentration on exhaustion.

The continuous dyeing of nylon fabrics

W. George Parks. *Am. Dyestuff Reptr. 40,* P14-29, P32 (Jan. 8, 1951).

Preliminary tests indicate that it is possible to dye nylon fabrics by the use of acid colors by

padding the dissolved dyestuff and steaming in conventional vat-dyeing equipment. The chemistry and the physical nature of the phenomena are discussed.

Spectrophotometric data are tabulated, showing the color value, wash fastness, influence of variation in length of steaming, influence of acids or assistants, and influence of heat treatments. Common dyeing problems of migration, preferential sorption, warpiness and barre effects are discussed from data obtained during plant dyeings.

The technique of screen printing

Sanford Gluck. *Textile Forum 7,* 7-8 (Dec. 1950).

Screen printing begins with a painted design which is copied onto film using India ink. One film is used for each color. Light-sensitive, coated cloth is then exposed to light through the film; and parts of the cloth not covered by the black portions of the film are chemically changed by the light. The piece of cloth is then "developed", and the result is a piece of cloth with open spaces wherever color is wanted. Such a piece of cloth is called a screen, and as many screens are prepared as there are colors in the pattern.

Either direct application or discharge printing may be used. Both methods are described in detail. Generally, in direct application printing, the cloth is first boiled off until white, and the colors are applied against the white background. In discharge printing, the cloth is dyed with a background tint and then the colors are printed onto the dyed cloth.

Vat color ageing calls for strict control

T. N. Patrick. *Textile World 101,* 141, 143 (March 1951).

Major difficulties in the process of ageing for the fixation of vat colors are centered in the steam supply and the mechanism of the steam chamber. Condensate is said to be corrected by adequate vents, sufficient steam, the correct use of backgrays, and good steam traps and drainage. Other faults such as sticking to the rolls and "piling up" of fabric are said to be prevented by the correct regulation of tension on goods entering and leaving the steam chamber.

Vat dyes of the anthrimide carbazole thioxanthone type

Fritz Max & David I. Randall (to General Aniline & Film Corp.) USP 2 533 170, De. 5, 1950.

Vat dyes capable of dyeing textile fibers orange

to red-brown shades of excellent fastness properties.

SPECIAL FINISHING F

A new anti-shrink process

A. J. Hall. *Textile Mercury & Argus 124,* 199-201, 202 (February 2, 1951).

If treatments of wool with chloroamines are suitably adjusted, these compounds can reduce the felting properties of wool and give it a reasonably good degree of resistance to shrinkage. When treated with N-chloro-sulphamic acid, wool is modified so that it not only remains unshrinkable under severe conditions of washing, but also is not damaged materially.

A new way to flameproof nylon

R. C. Axtmann & A. T. Sweet. *Textile World 101,* 130-131 (March 1951).

Flammability of nylon fabric can now be greatly reduced by a new method developed by du Pont for flame-proofing. The treatment is with thiourea-formaldehyde resin, and the application is similar to the application of the resin creaseproofing treatment. Wash fastness tests and method of preparing the resin and treating the fabrics are outlined.

Apparatus for the continuous after treatment of flocculent textiles

Bastiaan G. deKlerk (to American Enka Corp.) USP 2 539 947, Jan. 30, 1951.

Apparatus for treating flocculent textiles which comprises a treatment chamber including top, side and end walls, a tank underlying each end wall, a wall extending between the tanks and forming therewith a bottom to the chamber, each tank extending above the lower edge of the respective end wall so that a pool of liquid in each tank can function to seal ingress and egress openings to the tank, a conveyor to support and convey a quantity of flocculent material to and through the tanks under the end walls and through the chamber, the conveyor extending generally horizontally in a plane above the lower edges of the end walls of the chamber within the chamber and to and from the tanks but extending below the edges of the end walls of the chamber within the tanks, and means for applying a treating liquid to the material during its passage through the chamber.

Cellulose treated with di-vinyl sulfone to shrinkproof

Dwight L. Schoene & Victor S. Chambers (to U. S. Ruberb Co.) USP 2 524 399, Oct. 3, 1950.

A method which comprises contacting and chemically combining cellulose and derivatives of cellulose containing cellulosic hydroxyl groups with divinyl sulfone.

Cellulosic textile shrinkage control and crease resistance with inhibited tenderizing action

Leo Beer (to Alrose Chemical Co.) USP 2 541 457, Feb. 13, 1951.

In the process of treating textile materials, the steps of impregnating textile materials of the group consisting of natural cellulose, regenerated cellulose and mixtures with each other and up to 50% of cellulose esters of organic acids, which, textile materials are substantially free from sizing agents, with an aqueous solution of an aliphatic aldehyde type compound, at least 0.1% but not over 10% of an alkali metal sulfate and a small amount of a member of the group consisting of a water-soluble non-volatile organic acid, an acid salt and a potentially acid salt, removing surplus liquid from the textile material, drying it until most of the water has been removed and baking at substantially 120-175° C., wherein the kind and amount of aldehyde-type compound is at least sufficient to confer shrinkage reduction on the textile material.

Covers

George C. Holroyd & Joseph M. Almand (to U. S. Rubber Co.) USP 2 534 818, Dec. 19, 1950.

A heat resistant porous fabric cover for ironer rolls, comprising a closely woven fabric formed of asbestos warp and weft yarns and the fabric being impregnated with an intermixture of between 10 and 40% of the weight of the untreated fabric of a melamine-formaldehyde thermosetting resin and between 1 and 5% of the weight of the untreated fabric of a polymerized methyl methacrylate thermoplastic resin, so that these intermingled resins give the fabric a smooth porous surface and good wear-resisting properties and also good tear-resisting properties.

Effect of anti-slip agent (Syton-W. 20) in woolen and worsted spinning

Anon. *Indian Tex. J. 60,* 922-24 (Sept. 1950).

Describes mill experiments using Syton W. 20 as an anti-slip agent. As a result of this work it is concluded that improvements in processing of fibers to yarn stage, increases in production and decreases in mill costs are achieved.

Fast speed fluid treatment of running lengths of fabric

Edward F. Williams, Newton and William J. Brayden, USP 2 537 290, January 9, 1951.

A method of treating fabric which comprises continously moving a strip of fabric longitudinally in open width and taut condition past a treating zone, the path of movement of the fabric at said zone being inclined upwardly in the direction of movement of the fabric to a relatively narrow area disposed transversely across the fabric adjacent to and along the fabric existing edge of the zone, maintaining the fabric in close contact with the top margin of said area, maintaining a pool of treating liquid of substantial depth in direct contact with the upper face of the fabric at said zone, continously drawing from the pool to said area a uniform layer of liquid on said face of the fabric in the direction of movement of the fabric, maintaining a high vacuum at the opposite face of the fabric along said area solely against the atmosphere, the fabric and the liquid continously brought to said area by said layer, continously forcing said layer of liquid directly through and transversely of the fabric at high speed at said area by said vacuum, and constantly supplying make-up liquid to the pool to maintain a constant depth of liquid in constant contact with the fabric at said zone.

Flame resistant and mildew resistant composition for cellulose fibers and fabrics

Richard D. Vartanian (to American Cyanimid Co.) USP 2 536 988, January 2, 1951.

A stable heterogeneous oil-in-water type emulsion, adapted for the simultaneous deposition on fabrics of mildew-proofing, fire-resisting, afterglow-preventing, coloring and binding materials from an aqueous medium, which emulsion is comprised of a continuous dispersion medium comprising water containing 0.1-10% by weight of a hydrophilic colloid and 1-5% of a water-soluble phosphate afterglow preventative; a dispersed phase comprising 5-30% of film-forming substantially colorless water-insoluble non-volatile chlorinated organic compound containing 2-12% by weight of the emulsion of combined chlorine and capable of liberating HCL at elevated temperatures, 6-15% of a colorless, fire-retarding pigment, and an organic solvent; a separately dispersed phase comprising an organic solvent, 0-5-10% of an uncured, heat-convertible, resin binder selected from the group consisting of (a) the drying-oil-modified alkyd resins, (b) organic-solvent-soluble amide-aldehyde resins, and (c) mixtures

thereof, and at least one coloring pigment; 0.25-4.0% of a water-soluble soap of a fatty acid; and 0.3-2% of a halogenated phenol mildew-proofing agent dissolved in a water-soluble sulfonated oil, the percentages given being percent by weight of the total emulsion.

Here's how nylon anti-static agents compare with each other

L. B. Chandler. *Textile World 101*, 116-17 (Jan. 1951).

More than 150 anti-static compounds for nylon were tested by Du Pont laboratories, and the results from seventeen of the tests are tabulated, showing the electrostatic voltage held by the fabrics after varying percentages of the anti-static agents were used.

Method of waterproofing paper textile fabrics

John J. Petroske (to Patchogue-Plymouth Mills Corp.) USP 2 536 656, January 2, 1951.

The method of waterproofing a textile fabric which is normally innocuous to lacquer, which includes the steps of applying a brush coating of a waterproofing agent containing aluminum acetate in a wax emulsion to one side of the fabric only, brushing the damp and dry sides of the fabric, arresting impregnation of the fabric by the water-proofing agent by drying the fabric in the presence of heat before complete impregnation takes place, spraying the untreated side of the dried fabric with lacquer under pressure, and allowing the lacquer coating to dry and form a flexible, transparent, glossy coating upon the fabric.

Method of treating wool to prevent felting during wet processing

Malcolm J. Reider (to Geo. W. Bollman & Co. Inc.) USP 2 541 780, Feb. 13, 1951.

In the wet processing of wool, the improvement which comprises forming a deposit of finely divided material between the scales of the wool fibres by treating the wool fibres with an aqueous suspension of a water-insoluble finely divided material inert to the wool at a pH differing from the isoelectric point of the wool, the finely divided material being one having a negative (—) charge when the wool is processed on the acid side of the isoelectric point and being one having a positive (+) charge when the wool is processed on the alkaline side of the isoelectric point, whereby in the presence of such finely divided material felting of the wool is prevented during wet-processing.

Modern textile auxiliaries

A. J. Hall. *Skinner's Silk & Rayon Rec. 24,* 1640, 1644 (Dec. 1950).

Significant progress in detergents over a period of years is said to have resulted largely from the substitution of products containing a sulphuric acid residue in place of a carboxyl group. Long chain hydrocarbon radicals, having a terminal carboxyl group, invariably form a calcium salt which is insoluble in water. Similar hydrocarbon radicals having a terminal sulphuric acid residue group usually give a calcium salt which is water-soluble enough to be dispersed.

Recently, auxiliaries have had sulphuric acid residues attached to ring type hydrocarbons instead of straight long chain hydrocarbons. It is from this difference that the mis-use of the terms sulphate and sulphonate arises. The chemical structure dictates the use of the terms. If the sulphuric acid residue is linked to the hydrocarbon part of the molecule by means of an oxygen atom, then the substance is a sulphate. If there is no intermediate linkage, the substance is a sulphonate. The chemical structures and textile uses of eighteen auxiliaries are given.

Mothproofing — in theory and practice

Alfred Carpenter. *Textile Recorder 68,* 83-4 (Dec. 1950).

The desirability of preventing damage to wool stocks and wool fabrics did not attract a commercial mothproofing application prior to 1920, when it was discovered that metallic fluorides rendered the fabric diet of larvae poisonous. These compounds had no affinity for textile fibers, however.

Triphenylmethane dyestuffs were then found to be mothproofing agents. Their relatively simple application is described, using Lanoc CN. In 1939, Mittin FF was introduced. Applied similarly to Lanoc CN, Mitin is an effective but expensive mothproofing agent. Where mothproofing is required only to see the goods safely from warehouse to consumer, P.C.P. (pentachlorphenol) may be combined with a protein substance before emulsification, then direct dyed on the goods, with no trouble such as formerly encountered with dermatitis. Mystox B (Catomance) is believed to be such a product.

For safeguarding goods in oil, it is rarely possible to open bales for such treatment; and the most useful procedure suggested is to spray with a D.D.T. insecticide, whitewash the warehouse with a contact insecticide, keep the room light and well ventilated, and, above all, to avoid mildew.

Mothproofing composition and the application thereof to fabrics from dry cleaner's solvent

Ernest A. Wolff (to Merck &Co., Inc.) USP 2 540 311, Feb. 6, 1951.

A process for mothproofing woolen fabric that comprises saturating such fabric with an impregnating solution comprising dry cleaners solvent having dissolved therein 2 to 4% by weight of a mothproofing composition composed of 1,1-bis-(p-chlorophenyl) -2,2,2,-trichlorethane and about 2 to 15% of its weight of a resin plasticizer selected from the class consisting of dibutyl phthalate, trio-cresyl phosphate, and methyl abietate as an agent to prevent crystallization of the 1,1-bis-(p-chlorophenyl)-2,2,2-trichlorethane on the fabric, removing imprgenating solution from the fabric until the amount of residual solvent is about 10 to 20% based upon the dry weight of the fabric, drying the fabric to remove the 10% to 20% of residual solvent in the fabric, thereby obtaining a mothproof fabric coated with 0.2 to 0.4% by weight of the composition.

Oil-in-water type emulsion for flameproofing fabrics

Frederick Fordemwalt, (to American Cyanimid Co.) USP 2 536 978, January 2, 1951.

A stable, heterogeneous, oil-in-water type emulsion, adapted for the simultaneous deposition on fabrics from an aqueous medium of fire-resisting, coloring and binding materials, which emulsion is comprised of a continuous dispersion medium comprising water containing a hydrophilic colloid; a dispersed phase comprising a film-forming, substantially colorless fire-resistant, water-insoluble, non-volatile, chlorinated organic compound capable of liberating HCL at elevated temperatures, a colorless, fire-retarding pigment, and a hydrocarbon solvent; a separately dispersed phase comprising water-insoluable organic solvent, at least one coloring pigment and an uncured, heat-convertible, binder resin, selected from the group consisting of (a) the drying-oil-modified alkyd resins, (b) the organic hydrocarbon solvent-soluble, amide-aldehyde resins and (c) mixtures thereof; and a water-soluble soap of a higher fatty acid, the proportions as weight percentages of the total emulsion being 0.1-10% hydrophilic colloid, sufficient chlorinated organic compound to provide from about 2-12% of combined chlorine capable of liberating HCL at elevated temperatures, 5-30% fire-retarding pigment, 0.5-10% binder resin and 0.25-4.0% soap.

Process of producing an impregnated, waterproof, fibrous sheet

Charles M. Baskin (to Standard Oil Development Co.) USP 2 541 631, Feb. 13, 1951.

The process of producing an impregnated, waterproof, fibrous sheet which comprises impregnating fibrous material with a bituminous saturant, coating the saturated fibrous material on both sides with pulverized normally brittle asphalt, placing the impregnated pulverized asphalt coated fibrous material on a surface and treating the pulverized asphalt with a solvent flux to amalgamate the pulverized asphalt.

A waterproof fibrous sheet composition having a basis of fibrous material impregnated with a bituminous saturant and having applied at least one surface thereof a layer of pulverized normally brittle asphalt.

Steam setting nylon fabric in batched rolls by a new automatic process

Anon. *British Rayon & Silk Journal 27,* 58-60 (February 1951).

A new machine called the Sanderson B. W. nylon-fabric-setting machine stabilizes nylon fabric in batched rolls so that the cloth does not become distorted or develop creases and wrinkles in subsequent wet processing.

The principal component of the Sanderson machine is a jacketed cylinder provided with steam for heat and moisture, with a vacuum pump, suitable controls, and a unique method of loading cloth rolls into the cylinder. There is a trolley over which a travelling carrier frame moves in and out of the cylinder. The carrier frames hold five rolls of any width.

Operation of the machine is said to be largely automatic, with controls of steam, vacuum, time, and safety.

Textile finishing developments

Anon. *Textile Weekly 46,* 1668 (December 22, 1950).

See front section.

Treatment of wool-containing textile materials

Linton A. Fluck, Jr., John E. Lynn & Edward A. Schuman (to American Cyanimd Co.) USP 2 539 365, Jan. 23, 1951.

A process of reducing the shrinking tendencies of a wool-containing textile material which comprises preconditioning the textile material by first treating it with an alkaline solution of a peroxy compound and thereafter removing the excess alkaline material, impregnating the preconditioned textile with an impregnant comprising a curable, non-cationic aminoplast, and advancing the cure of the aminoplast in situ, the amount of cured aminoplast in the textile material being sufficient to render it resistant to shrinking.

Treatment of a heat set, oriented nylon fabric with formaldehyde

Boynton Graham & Orion Edwin Schupp, Jr., (to E. I. du Pont de Nemours Co.) USP 2 540 726, Feb. 6, 1951.

A process of improving a fabric comprising oriented nylon fibers in which the nylon contains hydrogen-bearing amide groups, the fabric having been heat-set by heating at a temperature within 25° C. of the softening point of the nylon, the process comprising impregnating the fabric with an aqueous solution of a nonvolatile acid catalyst, the catalyst being one which yields a saturated aqueous solution thereof having a pH below 3, heating the impregnated fabric at a temperature of 100° C. to 250° C. until essentially all the moisture is removed from the fabric, and then heating the dried impregnated fabric while maintained at fixed dimensions with anhydrous formaldehyde vapor at a temperature of 100° C. to 250° C. in the absence of other reactants until the nylon in the fabric contains at least 1.5% by weight thereof of combined formaldehyde.

Waterproof treatment of materials

John R. Elliott & Robert H. Krieble. (to Canadian General Electric Co., Ltd.) Can. P. 469 488, Nov. 21, 1950.

The process of rendering a cellulosic material water-repellent and fungus resistant which comprises (1) treating the material with a composition comprising (a) an aqueous solution of a water-soluble alkali-metal salt of methylsilanetriol and (b) a water-soluble inorganic copper salt, and (2) causing the formed methylpolysiloxane on the surface of the treated material to become water-insoluble by drying the treated material under the mildly acidic conditions whereby the treated material becomes water-repellent.

TESTING AND MEASUREMENT G

Clothing and fabrics G 1

Adhesion of rubber and textiles

E. M. Borroff, R. S. Khot & W. C. Wake. *Ind. and Eng. Chem. 43,* 439-43 (Feb. 1951).

The work relates to the adhesion of natural and synthetic rubbers to textiles. Included are improvements of test procedure and the use of improved test procedure to separate mechanical from specific factors in textile adhesion with the ultimate aim of designing textiles to give im-

proved adhesion. The most important result is the establishing of the role played by the projecting fiber end. This is embedded in the rubber and must either be pulled out or broken off in order to separate the rubber from the textile. The work shows that the strength of the bond formed is a function of the number broken off in the rubber. A convenient means of obtaining good adhesion of rubber to fabric is suggested by the work. This involves the construction of the textile with a small percentage of spun staple, the fibers of which have high individual tensile strength. A continuous filament warp and a spun staple yarn will give the required adhesion.

Studies of worn and aged cotton fabrics

Mary E. Murdison & Jessie S. Roberts. *J. Tex. Inst. 41,* T429-445 (Nov. 1950).

The author investigates the state of wear in cotton materials using the Congo Red microscopical test supplemented by fluidity and tensile strength determinations. Progressive damage to the cuticle and tendering was noted from the application of heat from oven drying. The occurrence of either chemical or physical degradation of the cuticle was readily detected by the Congo Red test. Wear and washing combined were found to degrade fabrics more appreciably than laundering alone.

Weather's effect on cotton duck

J. W. Dean, W. N. Berard and R. K. Worner. *Am. Wool Cotton Reptr. 65,* 14-15 (Feb. 22, 1951).

See *TTD 7,* 916.

Instruments and instrumentation G 2

Abrasion testing

H. F. Schiefer. *J. Tex. Inst. 41,* P800-803 (Nov. 1950).

A review of a lecture by Dr. Schiefer to the Lancashire Section of the Textile Institute is presented. Work which the Textile Section of the Bureau of Standards has carried out in connection with the resistance to abrasion is cited. An empirical equation for estimating wear on carpets is presented. The equation given is $S = Kd^2H$ where:

S=Wear Index
K=A Constant
d=density of tufts
H=height of pile

Better results obtained with new textile testing equipment

Dame S. Hamby. *Textile Forum 8,* 30-1, 33 (Feb. 1951).

A brief description of the use of the I.T.T. Uniformity Analyzer, the Uster and the Pacific uniformity testers are covered. The development of the Stoll abrasion tester is briefly reviewed. A new fiber testing device developed by Dr. Hertel is now being marketed by Special Instruments Laboratories of Knoxville, Tenn. Called the Arealometer, the device measures fiber fineness and shape by measuring the resistance a given mass of fiber offers to the flow of air.

Fabric thickness gauge

Corliss L. Bodwell (to Goodall-Sanford, Inc.) USP 2 538 858, Jan. 23, 1951.

An apparatus for determining the thickness of fabric at any location transversely thereof while in the loom comprising the combination of a flat plate for positioning beneath and in contact with the fabric and extending transversely thereof while in the loom and an instrument for cooperating with the plate having a base, a plurality of at least three legs transversely spaced in two directions and mounted in the base and depending in parallelism therefrom and having sharp fabric-penetrating points located in a plane normal to the legs, a micrometer gauge mounted on the base, a plunger mounted in and depending from the base and movable in the base in paralellism with the legs and acting when thus moved to operate the gauge, the plunger having a flat foot the bottom surface of which lies in a plane parallel with the plane in which the points are located, the apparatus acting, when the plate is in position beneath and in contact with the fabric and the instrument is placed on the fabric with the points of the legs penetrating the fabric and engaging the plate and with the foot of the plunger resting on the fabric, to cause the gauge to indicate the thickness of the fabric.

Improvement in abrasion testers

Helmut Kob. *Melliand Textilber. 32,* 119-24 (Feb. 1951); *in German.*

The author first presents a historical survey of the various types of apparatus developed for the abrasion testing of fabrics (such as those devised by Hasler, Muller-Berthold, Herzog-Geiger, Schopper and others), followed by a brief description of the theoretical basis of the abrasion test. He then proceeds to deal with the limitation of the wearability test by the folding abrasion tester (Weltzien), the edge abrasion tester (Anderlitschka) and other apparatus (Stoll) and com-

pares their various advantages and disadvantages. Finally, the Hauser-Frank, the Schiefer and the Stoll Quartermaster abrasion testers are described, and the result of tests with the latter are explained.

Measurement of "whiteness" of wool especially in the loose state

H. J. Selling. *J. Tex. Inst. 42,* P44-45 (Jan. 1951).

Describes several methods for measuring "whiteness". Derives a formula for estimating this property which is in good agreement with visual impressions.

Measurement of damage to wool fibers

M. Robinet. *J. Tex. Inst. 42,* P20-22 (Jan. 1951).

Recommends for the determination of damage to wool the use of the reagent lactophenol cotton blue following a technique based on the counting of differently colored fibers. The degree of the significance of the results and an estimate of the degree of damage is obtained by means of the chi squared technique.

Measurement of yarn irregularity

M. W. Townsend. *J. Tex. Inst. 42,* P12-19 (Jan. 1951).

Presents a statistical analysis of data from round-robin tests on measurements of yarn irregularity in which six laboratories cooperated.

Multiple culture technique for testing rot-resistance, particularly suited to jute materials

S. N. Basu, A. P. Bhattacharyya, & R. G. Bose. *J. Tex. Inst. 41,* T466-480 (Dec. 1950).

Describes a method for the evaluation of rot-resistance of textile materials, the method being particularly adapted for jute materials. It involves simultaneous inoculation with five species of fungi which occur frequently in mildewed jute materials and possess marked tendering characteristics. This method gives results comparable with several other methods of testing, including soil incubation, whereas a single culture method fails to do so.

Physical textile testing

Mary Jo Wesson. *Textile Industries 115,* 108-29, 131, 133-4, 139, 141, 143, 145, 147, 149, 152, 155, 157, 159, 161, 163, 165, 167 (Mar. 1951).

Rapid method of determining ether extracts

J. C. Dickinson & R. C. Palmer. *J. Tex. Inst. 42,* T6-14 (Jan. 1951).

Describes a rapid method for the estimation of oil content in wool. This method involves two innovations, the first, concerning the method of the extraction proper and the second, the evaporation of solvent and weighing of oil. The described method is not only rapid but requires a minimum of apparatus and is nearly as accurate in much longer procedures.

Report of the 1948 inter-laboratory diameter and length experiment

R. C. Palmer. *J. Tex. Inst. 42,* P33-43 (Jan. 1951).

Presents a statistical analysis of the results (obtained by 15 cooperating laboratories in various countries) of measurements made to determine the lengths and diameters of wool fibers. The primary purpose of the study was as follows:

(1) to test the reproductibility of diameter measurements on the projection microscope.
(2) to test the reproductibility of several gravimetric types of measurements.
(3) to determine how to improve existing test methods.

Stroboscope for studying shuttles in motion

Anon. *Textile Industries 115,* 189 (Mar. 1951).

A high intensity stroboscope, designed for viewing a shuttle in motion on the loom, has a flash of white light of very short duration exactly synchronized with each cycle of mechanism under investigation. It is synchronized with the machine motion by a contactor fitted with remote control, and phase control is combined with the lamp assembly. Mfr: Dawe Instruments Ltd.

Universal moisture tester

Anon. *Textile Industries 115,* 185, 187 (Mar. 1951).

This moisture tester, designed for all types of materials, gives direct moisture readings on a dial from 8½ to 40%, instantly. It is equipped with a built-in thermometer and indicates automatically the temperature of the sample. Mfr: Burrows Equipment Co.

TEXTILE MILLS H

Activity vector analysis

Bill Eastman. *Textile Industries 115,* 87-90 (Mar. 1951).

In addition to machinery and product research, human research in mills is of utmost importance. A forward step in human research is

a new temperament measure called Activity Vector Analysis. It is usable on a day to day basis for screening all job applicants at both high and low levels. The test takes less than 10 minutes, and scoring and interpreting the test takes only 5 minutes. Men selected from each organization can be trained to administer, score, and interpret the tests. To prove effective, jobs must also be studied to determine its temperament characteristics.

Air conditioning in textile mills

Leo Walter. *Indian Tex. J. 61,* 148-154 (Dec. 1950).

Recommends the use of air conditioning for textile mills in tropical climates for two reasons: (1) reduces seconds and ensures a more even product, (2) increases quantity and quality of product and provides more comfortable working conditions. Describes the elements of design and functions of air conditioning plants in textile mills.

Control of mill operations by government hinted to AATT

Anon. *Am. Wool Coton Reptr. 65,* 53, 55, 57, 88-92 (Mar. 15, 1951).

A report is given on the Conference on New Fabrics for the Armed Services organized by the American Association of Textile Technologists and held in February in New York City.

Here's the Puerto Rico textile story

C. W. Bendigo. *Textile World 101,* 103-118 (March 1951).

The article describes Puerto Rico's textile industry, with emphasis upon the factors that influence the selection of the island as a possible site for textile mills. Factors discussed by the report include why textile mills are wanted on the island, size of the industry, potential growth, inducements to industry, tax benefits, and transportation.

How to pick a site for a new mill

George Wrigley, Jr., *Textile World 101,* 137, 139, 214 (March 1951).

An engineer outlines the steps necessary for the selection of a good site for a mill. Regional factors, state and community considerations, and building-site factors are reviewed. The objective of the engineer in picking a site is to hold every element at the minimum-cost level.

Huntsville's vibration problem solved

F. J. Crandell. *Textile Industries 115,* 102-6 (Mar. 1951).

At Huntsville Manufacturing Co. the installation of high speed looms created the problem of excessive vibration of mill building walls and floors. Previous efforts in other mills to solve this problem by increasing the stiffness of the structure through various methods had been of some success but with disadvantages in each installation. To accomplish the objectives at Huntsville the basic theory used was to reduce the stiffness of the building without increasing the stresses imposed on the structure at other points. Dynamic forces involved had to be determined and a three-plane accelerograph was used to measure the accelerations and frequencies of the forced vibrations of the vertical, longitudinal, and transverse planes on each floor and wall of the building. After analysis of the data, it was found necessary to install spring isolators under the floor beams. The isolators were designed to resist the dynamic forces imposed on the wall in all three planes and were pre-stressed to limit the movement involved and assist in actual installation. The installation produced a material reduction in wall movement and proved practical as well as economical.

Impressions of the American rayon weaving industry

H. Siddle. *J. Tex. Inst. 41,* P819-831 (Dec. 1950).

Describes American loom sheds, looms, warping, sizing, weaving, humidity and temperature control. Cites the differences and points out the advantages of the American and British methods of production.

New cost-cutting equipment

Anon. *Am. Wool Cotton Reptr. 65,* 35, 99 (Mar. 15, 1951).

Pre-show reports on the Knitting Arts Exhibition in Atlantic City and the National Materials Handling Exposition in Chicago to be held on April 30 to May 4 are given with information on some of the machines to be shown.

Operation recorders help in making time studies

Alex N. Engbloom. *Textile World 101,* 134-136 (March 1951).

See front section.

The Whitin Story since 1831

Anon. *Am. Wool Cotton Reptr. 65,* 27, 121-5 (Mar. 15, 1951).

In this third and final article reviewing the recent book by Thomas R. Navin, the history of the Whitin Machine Works from the 1880's

through 1946 is traced.

Water analysis

S. K. Love. *Anal. Chemistry 23*, 253-7 (Feb. 1951).

The third annual review of analytical procedures applied to the analysis of water covering papers published during the past years, plus a few papers published in earlier years which were not included in the previous reviews. References are made to the use of instruments and several procedures which relate to the analysis of water-borne industrial wastes. 101 references.

Why didn't someone think of this before?

(A foreword by A. D. Elliott of the article, "Huntsville's Vibration Problem Solved"). *Textile Industries 115*, 102-106 (March 1951). See front section.

YEAR BOOK OF THE TEXTILE INSTITUTE, 1950-51

Textile Institute, 16 St. Mary's Parsonage, Manchester 3, England; 246 p. *Textile Industries 115*, 192, 195 (Mar. 1951).

Comprehensive textile information and technical data, as well as an outline of the objects, aims, and activities of the Institute are contained in this third year book. Standardization, textile terms, tables of equivalent yarn counts, etc. are also included.

CHEMISTRY AND PHYSICS OF MATERIALS I

A new color reaction of cationic soaps and its application to studies of their interactions with cellulose fibers

John A. Hart & Edward W. Lee. *Tappi 34*, 77-9 (Feb. 1951).

A new color reaction of alkaline earth metal lakes of the dyestuff Eriochrome Azurol B with cationic soaps is described. The reaction was found to provide a very sensitive means of determining cationic soaps in dilutions as great as 1 part in 10 million. The adsorption of cationic soaps on cellulose fibers of varying degree of purity and mechanical refinement has been measured, and the data are discussed. The dyestuff is shown to serve as a good indicator in the determination of anionic soaps by titration with cationic soaps.

Applied Electronics Annual 1951. International Year Book & Directory For Radio & Electronics

By R. B. Blaise, Editor. British-Continental Trade Press Ltd., 222, Strand, London. 263

pages.

In view of the growing importance of the use of electronics in the textile industry, the 1951 edition of the Applied Electronics Annual is of special interest. This book is the first volume of the Yearbook and Directory for radio and electronics. It deals exhaustively with every practical application of electronics in industry, including thickness measurements by ultra-sonics, moisture content measurement, stroboscopes, high speed photography, and other industrial applications.

Electrochemical methods in process control

J. Jackson. *Instrum. Practice, 4*, 653-7 (Oct. 1950).

Discusses the principles of electrochemical methods of process control, and their main advantages which include high sensitivity and a linear temperature relationship. Instruments for the measurement of conductivity are described, and their chief industrial applications are reviewed. Illustrations.

Electron microscopy and wall structure of natural cellulose fibers

Kurt Hess. *Kunstseide und Zellwolle 28*, 339-47, (1950); *in German.*

A review, with extensive references and illustrations covering the literature of the last ten years.

Electronic instrumentation applied to engineering research
Section 5. Noise measurement

R. K. Vinycomb. *Instrum. Practice 5*, 27-31 (Nov. 1950).

Reviews instruments for objective sound measurement (sound level meters, analyzers, and microphones), for vibration measurement (including a new Westinghouse instrument), and other sound-measuring equipment (level recorders and magnetic recorders).

Electronics review

Anon. *Instrum. Practice 4*, 670 (Oct. 1950).

Resume of papers read at the Electronics symposium. Subjects included: industrial applications of electron optics; improvements in direct recorders; pH meter design; electronic counting; the beta-ray thickness gauge and its industrial applications; and user problems in electronic instruments.

Electronics in the textile industry

L. T. Jester, Jr. *Manual of the Textile Ind.*

of Canada, 70-75 (1950).

Describes use of electronic equipment in various fields of textile processing, including determination of moisture content of moving fabric, dielectric heating, testing yarn evenness, and measurement of thickness of materials by means of gauge combining the use of electronics with radioactive energy.

Experiments on the reduction of the crystallinity of cotton cellulose

Leon Segal, Mary L. Nelson and Carl M. Conrad. *J. of Phys. & Colloid Chem. 55*, 325-36 (Mar. 1951).

A study has been made of the application of certain swelling agents to cotton cellulose and of their removal by non-aqueous liquids, with a view to reducing the crystallinity of the cellulose. The crystallinity of the resulting products has been estimated by the acid-hydrolysis residue method.

Fundamental considerations in measuring circuits using light sensitive devices

R. C. Walker. *Instrum. Practice 5*, 22-6 (Nov. 1950).

Describes various types of photoelectric cells including emission, vacuum, gas-filled, and rectified cells, and discusses the choice of cell and circuit according to the light intensity and accuracy of measurement required. Diagrams.

Light absorption and photo-chemistry (including photo-polymerization and the effect of light on dyes)

E. J. Bowen. *Quart. Rev. 4*, 236-50 (1950).

Discusses application of wave-mechanical principles to the spectra of the hydrogen atom and molecule, and the relation of more complicated molecules to hydrogen by successive approximation. The physical chemistry of the photochemical behaviour of dyes is discussed.

Reaction of wool with organic chloramines. II—The nature of the reaction

P. Alexander, D. Carter & C. Earland. *J. Soc. Dyers & Colourists 67*, 17-22 (Jan. 1951).

Shows that chloramines can oxidize wool by two different mechanisms neither occurring via the intermediary of free chlorine in solution. Indicates that only one of the reactions renders wool non-felting.

Review of analytical chemistry coatings

T. G. Rochow & R. W. Stafford. *Anal. Chemistry 23*, 212-16 (Feb. 1951).

A review of the methods of analysis of organic coating. General methods are considered first, followed by resinography. Monograph on the analysis of separate parts of organic coatings are taken up in the order: separate classes of resins, relevant oils, pigments and specific constituents of functional groups. Auxiliary references to a limited bibliography on relevant descriptive and evaluative literature are presented as general background information. 164 references.

Role of the disulphide bond in reactions which render wool non-felting

P. Alexander, D. Carter, & C. Earland. *J. Soc. Dyers Colourists 67*, 23-27 (Jan. 1951).

Shows as a result of peracetic acid experiments that the disulphide bond alone does not remove the D. F. E. of wool fibers and thus cannot bring about non-felting by surface attack alone. Concludes that two reactions are necessary to cause the preceding effects: (1) splitting of the disulphide bond without the formation of a new cross-link and (2) breakdown of the wool molecule at the tyrosine residue in the polypeptide chain.

Statistical methods in biological and chemical experiments

Anon. *Nature 166*, 779 (Nov. 4, 1950).

Note on papers presented at the conference held in 1949 by the New York Academy of Sciences on the "Place of Statistical Methods in Biological and Chemical Experimentation".

Strain, measurement equipment. Electronic instrumentation applied to engineering research

R. K. Vinycomb. *Instrum. Practice 4*, 661-6 (Oct. 1950).

Review of electrical and electronic instruments for the measurement of strain, including magnetic and bonded resistance-wire strain gauges, strain indicators and recorders, and torquemeter of the resistance gauge and magnetic types. Illustrations.

Stress analysis review

Anon. *Brit. J. Applied Phys. 1*, 241-51 (Oct. 1950).

Summarized proceedings of Inst. of Physics conference on stress analysis, held in London, April 1950. Subjects included the application of experimental stress analysis methods to soil mechanics problems and to the motor industry. Diagrams.

Synthesis of mixed cellulose esters containing phosphorus

C. S. Marvel & Bernard R. Bluestein. *J. of Polymer Science 6*, 351-58 (Mar. 1951).

Mixed cellulose acetate chloroacetates were prepared from a partially acetylated cellulose with only slight degradation. These cellulose acetate chloroacetates were reacted with triethyl phoshite in the Arbuzov reaction to yield phosphorous-containing cellulose derivatives which were flame-resistant. A mixed cellulose acetate diethyl phosphate was also prepared and found to be flame resistant.

X-ray study of the soda-celluloses of jute treated with caustic soda at room temperature

R. R. Mukherjee & H. J. Woods. *J. Tex. Inst. 41*, T422-28 (Nov. 1950).

Describes the treatment of jute under no tension at 20°C. in caustic soda solutions of greater than 10 per cent whereby there is a complete transformation of the crystalline material to soda-cellulose. Removal of the alkali by washing at room temperature results in the partial reconversion of the cellulose to the native modification. This effect is ascribed to the stabilizing influence of the lignin.

TEXTILE EDUCATION AND RESEARCH J

Absorptiometric colorimetry

C. H. Giles. *J. Soc. Dyers and Colorists 66*, 615-29 (Dec. 1950).

Gives a short account of the basic principles of operation and construction of absorptiometric colorimeters. Describes the Beers-Lambert laws, photoelectric cells, and absorbtiometric colorimeters incorporating them, the various types of visual comparison instruments, apparatus for making continuous measurements, the reason for use of color filters, the determination of colored substances in mixed solution, the accuracy of absorptiometric colorimeters, desirable future developments and terminology.

Combination of wool with acids in presence of salts

Bertil Plofsson. *J. Soc. Dyers Colourists 67*, 57-66 (Feb. 1951).

Discusses the absorption of hydrogen chloride and sulfate ions when titrations of wool with hydrochloric acid in the presence of sodium chloride, sodium sulfate, potassium chloride and sulfate and barium chloride, and with sulfuric acid in the presence of sodium chloride and sulfate are performed. Presents a critical review of absorption theories as regards their value for interpreting experimental results.

Estimation of anionic detergents in solution by Hartley titrations

Kathleen Swanston & R. C. Palmer. *J. Soc. Dyers Colourists 66*, 630-37 (Dec. 1950).

Gives a rapid method for estimating anionic detergents. This method, which is a modification of the Hartley Runnicles method, is shown to be as accurate and more rapid than other published methods.

Reaction of acrylonitrile with macromolecular hydroxy substances. II—Production and uses of water-insoluble, alkali soluble cyanoethyl cellulose ethers as soluble yarns

J. H. MacGregor & C. Pugh. *J. Soc. Dyers Colourists 67*, 74-81 (Feb. 1951).

Outlines the conditions under which viscose and acrylonitrile react so as to produce spinnable yarns. Discusses fully the chemistry of the complex reaction. The usefulness of the yarns as reinforcing and substitute yarns for various uses is considered. Gives a brief account of the dyeing of these yarns with direct dyes.

Reaction of acrylonitrile with macromolecular hydroxy substances. General survey of the reaction

J. H. MacGregor. *J. Soc. Dyers Colourists 67*, 66-73 (Feb. 1951).

Describes the interaction of acrylonitrile with the reactive hydrogen atoms of the hydroxy groups of macromolecular organic substances such as cellulose, starch and polyvinyl alcohol. Reviews the properties and suggests probably industrial applications of the reaction products.

Second cotton research clinic

Anon. *Textile Industries 115*, 169-70, 231, 233, 235 (March 1951).

A report on the second Cotton Research Clinic, sponsored by the National Cotton Council of America, includes abstracts of papers and discussions, designed to be of value to all those interested in cotton. Mechanical processing of cotton; cotton fiber structure; measurement of cotton fiber properties; civilian and miltary fabrics and their treatment; and cotton industry problems are discussed.

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Trash Ejector for Openers, Blending of Raw Stock, and Intra-Mill Tractor Train Feature May Periodicals

NEW TRASH EJECTOR FOR OPENERS

A new machine known as the trash ejector has been introduced by Saco-Lowell Shops because of the need for the removal of seed coatings from cotton fiber. These seed coatings are said to be exceedingly light and have attached fibers which are finer than the average in the bales. Because of the lightness, the coatings cannot be beaten out in the usual way; and therefore the new machine was developed.

The trash ejector comprises four special beaters arranged one above the other, making a four-beater-high vertical machine. It can fit into a wide range of opening and cleaning machinery, including the new Southern Regional Research opener. The speed of the beaters is between 320 and 400 rpm.

Laps made from cotton passing through the new machine show considerable improvement over those made without the trash ejector. The amount of dust removed improves the color of the finished lap. Fewer seed coatings, light particles, and motes are present in the finished lap. *(Daily News Record*, April 5, 1951).

EFFICIENT BLENDING OF RAW STOCK AT SHELBY COTTON MILLS

Shelby Cotton Mills' blending equipment consists of three weighing feeders, a special feeding apron arrangement, and a Proctor & Schwartz "super picker". The stock is fed into the weighing feeders directly from the bale. On three-fiber blends, one fiber is fed into each of the three feeders, and a scale arm on each machine is set to give the proportionate weight of each fiber in the blend.

For example, on a 50-25-25 blend, the scale arm on the first feeder would be set, and then the arms on each of the other two would be set to feed half as much as the first.

The stock is carried upward on a pin apron and opened by a beater roll. The stock passes downward from the roll and falls into a scale pan which dumps at regular intervals, approximately every seven minutes, so that proportionate weights are dumped during any period of running time.

The system facilitates the use of sandwich blends. The scale pans dump onto short slat aprons, large oscillating arms being used to spread the stock evenly over the aprons. Each feeder is equipped with a short conveyor apron, and as they move forward, they dump the fibers onto a conveyor belt below. The stock is laid onto the conveyor in blankets rather than in batches. The stock from the first feeder makes the bottom blanket, the stock from the second feeder covers it, and the stock from the third feeder forms the top of the sandwich, or the top blanket.

The super picker is placed at the end of the conveyor. Its action is to draw the sandwich in from the conveyor and to pick through the stock with each tooth of a special picking cylinder. Bites of the sandwich are carried to the rear of the machine where they are expelled into an air chamber, then sent in bunch form through a pipe into the storage bins.

The picking through the sandwich completely is the essence of the Shelby processing. Stock delivered from the super picker is thoroughly mixed in small bunches.

Shelby developed a good system for checking on their machines to make sure that the equipment does the job of blending correctly.

When a run of a certain blend is nearly completed and the last of the stock is low in the feeder hoppers, the remaining stock is removed by hand and weighed. In a 50-25-25 blend, the 50% hopper might have 20 pounds of stock left, in which case a direct check is made possible on the blending accuracy, since the other two hoppers should have 10 pounds of stock left each.

Mill practice requires an hour of cleaning up of the machines when blends of different fibers are to be run, though this is not the case when the proportions only of the same fibers are to be changed. Operators check carefully before running reworkable waste. The moisture content of all bales is allowed to stabilize before processing, since wet and dry bales should not be mixed in the same blend.

Though the mills have had no trouble in maintaining good blending, they have recently installed a monitor system that is designed to shut aff all of the feeders in event one feeder should fail to deliver the correct weight of fiber for the blend. This addition to the equipment was made as a precautionary move. *(Textile Industries*, April 1951).

ELECTRIC TRACTOR TRAIN SAVES OVER $25,000 YEARLY

An intra-mill tractor-trailer transportation system at Montreal Cottons Ltd., Quebec, Canada, promises to save the mill more than $25,000

yearly in handling costs. The mill-wide tractor-train route is marked with yellow lines as a safety precaution, and doorway arches are painted with black and yellow stripes.

The train handles roving bobbins, warp and filling spinning-bobbins, twister bobbins, spooler cheese, winder cones and tubes, dye springs, section beams, loom beams, cloth in folds, cloth in rolls, cloth in bales, waste and sweeps from all departments. Special designs of trailers for the various packages were made.

The former system used by the mill cost $40,000 yearly. Its weaknesses:

1) All trucking was being done manually.

2) The number of truckers and the volume of traffic involved was such that the traffic through the mill was very heavy and often congested.

3) The distance covered by truckers in 10 hours amounted to over 65 miles.

4) Many trucks, baskets, boxes, etc., were being used interchangeably between departments. Shortages and dislocations occurred.

5) Methods and equipment used were responsible to some degree for damage to goods.

6) No single authority over the general intra-mill transportation existed.

7) Each department had its own truckers who were sent where, when, and as needed to deliver and pick up all items. *(Textile World,* April 1951).

DRY SCOURING OF WOOL

An improved machine for dry scouring greasy wool or mill wool wastes feeds the wool into a hopper in which it is opened up by a spiked drum and mixed with Kaolin. The wool then passes through 2 rotating chambers where it is tossed about by projecting plates. Finally, the wool is carried from the hopper by an air circulating system which also removes separated Kaolin for re-use and contaminated Kaolin for cleansing. (British Patent 641,678 from *Dyer 104,* Dec. 1, 1950).

SPINNING FRAME MAINTENANCE

The spinning frame stamps the grades of the finished product. If the stock in the creel is of good quality and the spinning frame is operated properly, a product of high standing can be expected. Extreme care must be exercised in each preparatory process to prevent impairment of ultimate yarn quality; in spinning, the final process, such care is of paramount importance.

No effort in spinning should be spared to avoid introducing defects. A good cleaning and maintenance schedule is a very important element in keeping quality high.

Where overhead cleaners are used, sufficient blowers must be in operation to prevent an accumulation of lint. Where blowing down is done manually, the equipment should be stopped and covered.

Scheduled cleaning is the standard practice. But few mills use the same frequency, as different types of stock demand greater or less cleaning. As a suggested outline, the roller beam, the ring rail, and the cleaners may be cleaned twice per shift, and under some circumstances oftener. Rolls and roll gudgeons should be picked twice a week on clean stock and oftener on coarse work. Good spinners do not allow their roll gudgeons to have too great an accumulation of lint. This accumulation retards the roll, causing wear and uneven yarn.

Overhauling and scouring may be done at six months or yearly intervals. At this time, all parts of the frame should be subjected to a detailed inspection. These parts, from the creel down to the builder, should be freed from any defect that could cause poor-quality work.

In addition to the usual procedure, periodic overhauling should not omit the following most-often neglected details:

1) Trumpets should be set correctly to the fluted rolls and should be free of nicks or marks that could disrupt the roving.

2) Thread guides, rings, and spindles, should be examined and repaired or replaced as required.

3) All tapes on the spindle drive should be freed of lint, and the tension pulleys adjusted to exert the proper tension.

4) The cam and cam follower should be examined and checked.

5) After the frame is again in operation, the pick should be adjusted so as to make the desired size of bobbin.

6) Good lubrication procedure should be initiated.

(The Whitin Review, January-February 1951).

SPINNING NYLON YARN ON THE WOOLEN SYSTEM

Regular or crimp-set nylon staple can be made into lofty yarns on the woolen system. The crimp-set staple gives greater loft and fabric stability than the regular staple. Usually, 1½ denier staple is spun into 10 run, 3 denier into 8 run, and 6 denier into 5 or 6 run.

Fine counts can be spun from 2-3 inch staple; and depending upon the number of ends on the

condenser and the thoroughness of the carding action, longer staples may be used.

Opening and conditioning of stock from the nylon bale and mild picking are recommended. For blends with wool, oiling and tinting of the nylon fiber should be done before mixing. Two or three passes through the blender or blending picker should insure good mixing of nylon with natural fibers.

Good carding of nylon staple comes from constant level of self-opened stock in the hopper, close settings on the doffer comb, faster speed of the feed apron, card settings similar to those for high grade wools, closer adjustment of the fancy, workers, and strippers, good mechanical condition, and regulation of the tension on the final web to prevent the formation of thin spots. On 96 or 120-end condensers, it may be necessary to keep the staple length below three inches to prevent over-lapping of fibers from one roping to another.

Reversing one or more of the workers on the second breaker may help to improve the carding action, and the spinning of fine yarns calls for very light ropings in order to avoid high drafts. Drafts of 2 or higher may be used in spinning. Ring or mule frames may be employed. *(Textile Age,* February 1951).

THE SICKNESS AND RECOVERY OF A TEXTILE MILL, PART 6

Prior to a consistent program of mechanical checkup and management intensification, an unnamed mill had 35 percent reties on Barber-Colman spoolers. By showing up the spindles in the spinning room which were making bad bobbins, and by reducing bad piecings by spinners, the mill reduced this percentage to 17.

Warper beams were checked next. Over 40 percent were found to be more than .625 inches wider than standard, and over 55 percent were badly out of dynamic balance. Heads and barrels had to be overhauled. Warper stop motions were sluggish, necessitating the cleaning and conditioning of electrical contacts, guides, and creels. It was also discovered that section beams were not weighed and that there was no system for controlling the counts of the warp yarn.

Warping improvements together with slasher-room changes brought about a reduction of 25 percent in waste occurring at the back of the slasher. Slasher operators did not take pains to find "lost" ends, they resorted to "chicken-head" knot tying, lapping loose ends to adjacent ends on the section beam, and other poor practices. Slashing was instrumentized and controls were provided, but due to improper size-cooking procedures, size kettles had to be boiled out with Tri-sodium phosphate to remove incrustation and scale, and to get all the brown scum out of pipes and off the coils.

Slashers were overhauled; machine shop specialists used hydraulic swages to remove bumps and depressions in the cylinder; within the cylinder, buckets were refastened, and corroded stay-rods were replaced with good ones; the rim of the copper cylinder under the iron ring was restaked and the cylinder surface tested for concentricity and surface accuracy; old steam joints were removed, and new Johnson units were installed; all machine details of the slasher front and creel were similarly gone over and overhauled.

As a result of this program, the following accomplishments were reported:

1) Soft waste reduced 70 percent; 2) gain in sizing increased 9.17 to 11.4 percent; 3) water rate reduced to 1.3 pounds per pound of sized warp from 1.9; 4) wet spots on the warps were eliminated; 5) shedding at slasher reduced 60 percent; 6) overall slasher production increased 4 percent; 7) weave room conditions improved because of less loose ends on warps, more uniform density of warps, better size application, more strength in yarn, increased yardage per beam, and decrease in hard waste. *(Textile Age,* March 1951).

COTTON FIRM TO CONDUCT FIBER TESTS

Anderson, Clayton Co. plans to conduct fiber tests on cotton so that mills may know in advance what kind of raw cotton they are getting. It is questionable if any mill can long compete on a close market without some index of fiber quality beyond that given by grade and staple.

A good index may be obtained from yarn tests or it may stem from experience over the years in watching the fabric quality. However, when trouble arises it is often to late to learn of the fiber quality from spinning or weaving results alone. *(Daily News Record,* April 5th, 1951).

WINDER ATTACHMENT TRANSPORTS AND STORES BOBBINS

An attachment for spooling and winding machines transports bobbins of yarn from the spinning frame or conditioning machine by means of a bucket which runs on an overhead rail, according to USP 2,536,510 assigned to P. O. M. Co., industrial consultants at 60 East 42nd Street, New York.

The contents of the bucket is emptied into

a large storage hopper over the winder. Sufficient storage for a full shift or even a full day is made available, depending upon the counts of the yarn. Because the bobbins are gravity fed to the winder or spooler operator, the new device provides a natural first-in first-out supply of bobbins to the winder. This system eliminates the very long storage formerly given the lowest-lying bobbins which, through infrequent use, often became dirty or dry. *(Textile World,* April 1951).

PROPER TENSION ON FLY FRAMES DECREASES VARIATION IN ROVING

If the tension is correct on a roving frame, it can be run through a complete doff without having to compensate for any changes in tension. Correct tension can be gauged by sight and judgment. If it is correct, the ends tend to sag slightly and flap somewhat as the frame runs.

It is desirable to establish a standard tension gear for each type of stock and roving size and to determine that no other tension gears may be substituted at any time unless the change is sanctioned by the department head. Usually less tension is maintained when waste and short staple stock are processed.

Proper maintenance of bobbins, flyers, cones, and cone belts will help the mill control tension and thus decrease the variation in roving.

Bobbins that are too small in diameter tend to make the ends run slack. If tension is corrected for the benefit of these small bobbins, the ends running on bobbins of correct size will run too tight and cause stretched roving. Bobbins should be inspected regularly. Odd-size bobbins should be discarded or marked so that they may be run in certain frames where they will not be mixed with the regular bobbins. Worn gear slots in bobbins or bad barrels should be spotted, and bobbins containing these defects should be discarded.

Flyers that are out-of-balance or choked with lint, those that slip on the spindle top or in the spindle gear train, and spindles with broken or worn slots should be removed. Repair or reworking is the answer to incorrect tension as the result of such mechanical faults.

The profile of a cone is a critical point from the standpoint of good roving manufacture. Sometimes a cone from one frame is placed in operation on another frame. In event the frames are not identical, the cone will not operate correctly on the second frame; and bad roving will result.

A cone from a slubber should never be used on an intermediate, nor vice-versa. In addition, all cones should be checked and inspected to assure their being keyed tightly to the cone shaft.

The correct position of the cone belt for starting the frame should also receive attention from the fixer. This can be done by observation. If it is not done properly, the ends on the frame may run loose or tight. Similarly, tension gears should be inspected so that the correct one is always on the frame, and manufacturing defects such as rolls rubbing the saddle and worn rack gears should be eliminated. *(Textile Industries,* April 1951).

ROLLERS GIVING UNIFORM PRESSURE

A new method of maintaining a uniform pressure throughout the length of rollers used in carding, calendering, printing, and other types of machinery is claimed. The method controls the pressure about the line of contact of the pair of rollers by applying fluid pressure to the internal surfaces of the rollers either directly or indirectly through the medium of hydraulic plungers. The use of oil, water, glycerol or steam is possible since there is no danger of contaminating the product which is being processed. (British Patent 641,466, *Dyer 104,* Dec. 1, 1950).

MATERIALS HANDLING—A GREAT POTENTIAL FROM THE STANDPOINT OF COST REDUCTION

Materials handling holds great potentiality from the standpoint of cost reduction. The problem of what to do when a materials handling problem is encountered by the mill is answered from three points of view: how much the mill supervisory personnel itself can contribute to the solution; what can be offered by general industrial or construction engineers; and the possible contribution of specialists in materials handling, either the representative of materials-handling equipment manufacturers or the various consulting engineers who have nothing to sell except their experience and developed ideas.

A detailed case study of a materials-handling project in a cotton-mill cloth room is reproduced. Labor savings amounted to $13,041. Estimated equipment cost was $13,450; and the return on the investment annually amounted to 97 percent.

This project warranted the purchase of a tractor driver for trailers which held 12 loom rolls. The tractor positioned the trailers directly behind the sewing and rolling machines. Other refinements in handling technique were introduced. But conveyors were not recommended for moving the finally inspected cloth rolls from inspection to packing or storage. Simple floor

trucks were used for this job. *(Textile Age,* March 1951).

ULTRASONICS IN TEXTILE PROCESSING

Ordinary sounds produce a relatively slow vibration or shaking effect, but ultrasonic sound causes very rapid shaking. The "sound" which can be produced by a quartz crystal generator shakes water particles four or five hundred times more rapidly than the sound of a soprano voice.

Generally speaking, any effect which is produced in an industrial process by shaking or agitation is a suitable subject for study with regard to the application of ultrasonic methods. For example, in the scouring of greasy wool fibers, the grease is removed because it is broken up into very small droplets by the combined effect of a detergent and mechanical movement.

Too vigorous movement of the fibers as a whole may have undesirable effects such as felting, but ultrasonic vibration produces a means of inducing very rapid shaking of the fibers, which is much too small in amplitude to bring about felting, but is vigorous enough to shake off the grease into emulsion with the detergent.

Laboratory experiments have shown that fibers can be completely scoured by merely dipping them for fifteen seconds into a detergent solution which is agitated ultrasonically.

Solid particles suspended in a gas, such as dust in an air stream, may also be coagulated by ultrasonic methods, and in this way a valuable method of cleaning dust or mist from the atmosphere is available, as an alternative to electrostatic methods. The ultrasonic method is free from fire risks.

Some of the chemical reactions are very unexpected. For example, dyestuffs of certain types, in solution in water, are decomposed and bleached if the solution is subjected to suitable ultrasonic vibrations. Bromine is excited into luminescence. An extraordinary effect is that benzene is destroyed.

The effect of ultrasonics on micro-organisms has been studied, and the destruction of many bacteria and viruses has been confirmed. This provides a method of sterilizing materials which are heat-sensitive and can not be sterilized by the older methods. *(Wool Record,* July 13, 1950).

REPORT FROM EUROPE—THEY SET A FAST PACE IN TEXTILE RESEARCH

The United States lags far behind Europe in the size and scope of its cotton textile research effort. Despite the fact that we produce the raw cotton itself and European nations do not, our research program is relatively one fourth that of France, one seventh that of Sweden, one tenth of Britain's, and one twentieth of the Netherlands'.

Cotton research has had a thorough trial abroad. The British Shirley Institute was founded in 1922. In general, research is financed by the government and private industry. The allocation of funds provides for long-term commitments and long-range planning. *(Textile Industries,* April 1951).

TAKE A LOOK AT YOUR FREIGHT ELEVATORS

When a freight elevator isn't keeping up with the mass of materials that must be handled, the solution may not lie in the installation of a larger capacity elevator. First, be sure that the present machine is given a chance to do its job. How? By cutting waiting time to a minimum with more efficient loading methods.

One of the best ways to speed up this loading and unloading period is through the use of fork trucks carrying palletized loads. But the problem of load limits may be a difficulty here. The floor of the building must be inspected to see if it will stand the extra weight of truck, load, pallet, and truck operator; the elevator itself must be designed to carry the extra weight.

Older elevators may not be designed to carry the forces of impact and eccentric loading caused by the rolling of a loaded truck onto the elevator. Extra bracing, or strengthened floors, or stronger guide rails may be needed. Charts show the effect of impact and eccentric loading, and where possible, it is better to minimize these impact and eccentric loads by careful attention to loading procedures. *(Modern Materials Handling,* April 1951).

SLUBS IN WORSTED YARN

Definitions by the Wool Industries Research Association state that worsted yarn faults may be classified as neps, slubs, and long faults.

Neps are small ball-shaped matted clumps of fibers, loosely attached to the yarn surface and about 1/10th inch in size. They are picked out from the pieces in burling and do not cause so much trouble as slubs and long faults.

Slubs are caused by piecings at all stages, one half to one inch long and more rigidly attached to the yarn. They are trimmed down in the fabric.

Long faults are usually bad spinner piecings, spinner doublings, and similar defects.

Slubs are caused by piecings at all stages of processing, clicking and feathering tops, faulty

or missing faller pins, and excessive waste.

Tests on yarns made from top exposed to feathering showed that 10 slubs per pound of yarn were produced. In the case of yarn made from the same blend but in which there was no feathering or clicking, the tests showed no slubs.

Damage in fallers are classified as follows: bent pins; hooked pins (where the tip is bent over at least at right angles to the body of the pin); broken pins; and missing pins.

In tests to determine the effect of damaged fallers upon yarn quality, hooked pins were found to be the worst offenders. They produced thirteen times as many slubs as fallers with no damaged pins. Bent pins were nearly as bad, with broken and missing pins being the least harmful of the faller defects. *(Textile Record,* March 15, 1950).

MODERN MACHINERY — ITS RELATION TO FIBER BLENDING

Present-day wool costs are increasing the demand for synthetic yarns and blends of synthetics and natural fibers. Flexible equipment is needed to enable the mill to change over from a run of natural fibers to a blend in a matter of minutes. Present-day roving and spinning equipment can be readily adapted to blends or synthetics. The problem is what preparatory equipment can be used.

The use of the Warner & Swasey Pacific Converter, coupled with three subsequent pin drafting operations is the combination of preparatory machinery recommended. While the basic function of the converter is to convert continuous textile filament into a sliver containing fibers of a predetermined length, its blending attachment is perhaps the most significant feature of the machine.

In a single operation, the filaments are cut, given a primary blend, drafted and formed into sliver, thus eliminating opening, picking, carding and combing.

The blending attachment enables the natural fibers to bypass the cutter and form a suitable width of sheet which is introduced to the second draft section of the converter. Another feature of the blending attachment is its ability to break wool fibers. This is especially helpful to mills operating modified cotton systems where staple lengths beyond three inches are intolerable. *(Textile Age,* February 1951).

ELECTROMAGNETIC DOBBY SPEEDS SAMPLE DESIGN VARIATIONS

An electric dobby operates a new Swiss sample-weaving machine, making it possible to make up blanket samples quickly, even before the draft is made. Fabrics produced by the sample loom can be duplicated on conventional looms.

When working with the sample loom, drafts are made from the pegging of the loom, rather than vice versa. Merely changing a peg in the electromagnetic dobby changes the sequence of lift of a harness.

Picker-stickless, the sample loom has a spring-impelled picking motion built in under the shuttle boxes and synchronized with the lay motion. Hundreds of different weaves are produced with the same draft and a single punched card. Photographs show loom, magnetic dobby, collapsible warping frame, and varied sample weaves. *(Textile World,* April 1951).

NEW LOOM SLEY CAP

Jaff Engineers, Ltd., of 55, Burnage Lane, Levenshulme, Manchester, 19, claims to have solved most of the known sley problems with an entirely new type of sley cap. It is patented (Prov. Pat. No. 13412/50) and known in the trade as the "Jaff" sley cap rail. Made from H. T. A. alloy extrusion, it is light, strong, and of great durability.

One outstanding advantage, due to the compactness of the cap, is the clear vision which the weaver gets of all the reed, and the yarn in that vicinity. Getting maximum light on the warp ends eases the strain on the eyes, facilitates the operation and also saves electricity. The main forms so far fitted have been hollow rail caps and most firms have found this type entirely satisfactory. In other cases, however, where a strong beat-up was always the practice with the older type of wooden sley, although weighted "Jaff" rails were ordered by the manufacturer, the hollow form proved completely satisfactory on trial. Weighting can, of course, be applied if desired, but what is really called for in a perfect beat-up is a quick, staccato-like forward stroke and a slower recession to dwell, in order to give the shuttle time to cross the warp and get in a perfect pick. *(Textile Weekly,* Feb. 9, 1951).

GENERAL DYESTUFF SHOWS NEW CONTINUOUS FIBER-DYEING UNIT

Considerable economy over batch methods is offered by a new raw stock dyer that passes fiber material through a small dyebath by means of an endless-link belting. Fibers enter the dyeing machine in lap or stock form laid evenly. As the endless belt goes over a roll to enter the bath vertically, a second belt covers the material. The stock passes through the bath held between

these two endless belts. There is no tension on the fibers at any time, and the licquoir circulates freely.

The bath on the two machines which have been built thus far contains only 35 gallons. It is steamjacketed and insulated. Continuous flow of fiber through the machine makes for high production and low labor cost.

The speed and the thickness of laps or stock being fed to the machine may be varied and controlled. Capacity ranges from 500 to 3,000 pounds per hour on the present 40-in. machine. Top speeds appear to be 33 yards per minute and one to two pounds per yard on the conveyor belt.

Conveyors are used to remove the stock from the machine, to pass it through draw-roll nips, sprays of water or chemicals, and finally onto an inspection apron, whence it can be carried by truck or belting to the dryer.

Chemical and dye feeds are set up in the same manner as conventional feed tanks for continuous processing. Conveyors are adjustable tensionwise for variables in thickness of laps or stock. In setting up a run, the mill can process as little as half a pound of stock and determine the test results within five minutes. The machine requires 17 by 6 feet of floor space, and the design is such that a series of machines could be used in line for carrying out a complicated process continuously.

The machine is designed for the following operations:

1) Spun and staple rayon stock and rayon tow dyeing with all suitable classes of dyes; 2) spun and acetate dyeing with acetate colors; 3) raw stock wool scouring; 4) raw stock wool dyeing with vats; 5) wool slubbing dyeing with vats; 6) raw stock cotton dyeing from the bale with vats, naphthols, directs and sulphurs; 7) spun and staple nylon with vat and acetate colors; 8) non-woven fabric dyeing with vats, naphthols, directs, and sulphurs; 9) dyeing of Orlon acrylic fiber with vat colors. Mfr: General Dyestuff Corporation. *(Textile Age,* March 1951).

IMPORTANT NOTICE

Full references on front-section digests of articles are carried in the classified abstract section which follows.

New readers should note that the classified section is thus a complete index to all material published by the DIGEST, broken down into the natural classifications of "Carding," "Spinning", and so forth. Author and publication name, volume and page number, and other details are listed.

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